

R·S·G·B

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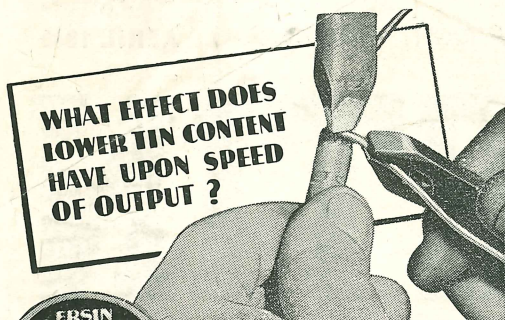
APRIL 1943

BULLETIN

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN



ALL-PURPOSE TEN WATT PUSH-PULL
AMPLIFIER



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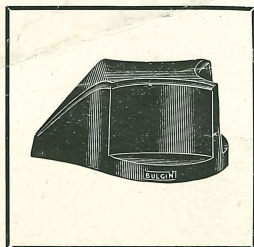
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THE BULLETIN IN WAR TIME

TWELVE months ago we announced that, due to paper rationing, it had become necessary to reduce the size of this journal to 16 pages per issue. We had anticipated minor criticisms, but none came, in fact throughout the year an ever-increasing volume of correspondence has reached Headquarters indicating approval of the steps taken last April to squeeze a quart into the proverbial pint pot. These expressions of appreciation have been warmly welcomed, but sometimes we wish that members would give us their considered views on how best we can improve these war-time issues.

In the years before the war, Provincial District Meetings provided us with opportunities of discovering the features that appealed most, but with travelling facilities heavily curtailed we are now compelled to depend almost entirely upon the written word for suggestions and constructive criticism.

The feature that has always aroused more controversial discussion than any other, is that known familiarly as "District Notes." Ever since 1926, when the Society staged its first Convention, arguments have taken place between those who favour their retention on the ground that they provide a valuable link between members, and those who consider that the space they occupy could be used for technical articles.

At the outbreak of war when THE BULLETIN suffered its first reduction in size, D.R.'s were requested to restrict the length of their reports to

200 words per month. Another, and more urgent, appeal was made a year ago when paper rationing caused a further reduction to 16 pages per issue. That our D.R.'s have endeavoured to furnish useful information in the restricted space allotted to them, goes without saying, but under present circumstances we feel justified in asking whether the space occupied by these reports could not be used to better advantage. In considering this matter, however, we should not lose sight of the fact that many members serving abroad look to this section of THE BULLETIN for items of general interest. Do District reports contain such items? To answer that question let us examine one or two of the contributions which were made to the March issue. From one District report we learnt that a member is taking a radio mechanic's course in Lincolnshire, another is *believed* to be in the Royal Corps of Signals, whilst a third dropped in for a chat with a local pal. Are these items of any *real* interest to the membership as a whole? We doubt it. Admittedly reports of local meetings are usually of interest, but are we justified to-day in devoting 3 of our 16 pages to a feature which cannot be regarded as even mildly technical. Remember those 3 pages represent 20 per cent. of our available reading matter.

Each month from October, 1939, we have published a list of members on Active Service, and to date well over 3,000 names have been recorded. Although these lists occupy half a page or more in each issue, we are reluctant to omit them because they provide positive evidence of the part being played by British radio amateurs. What are your views? Lists of New Members become increasingly lengthy, occupying more than a page in some issues. Can we now afford the space to publish this information?

One of our London Area Representatives recently conducted a quiz among the members who contribute to his Letter Budget, in order to ascertain the popularity or otherwise of certain BULLETIN features. As would be anticipated "Theoretical articles" received the highest number of marks, with "V.H.F. dope" taking second place. "Constructional articles" were placed third, with "DX Notes" (shades of 1939!), "Ham Notes," and "District Notes" occupying the fourth, fifth and sixth positions respectively. It would be unfair to allow the views expressed by this small group of members to sway editorial policy, but if we can obtain the considered opinions of those members who attend organised meetings, the information will serve as a useful guide in planning our next volume. May we suggest, therefore, that D.R.'s and T.R.'s conduct a BULLETIN Quiz at their next local meeting sending the result to Headquarters in tabulated form?

J.C.

A MULTI-PURPOSE TEN WATT PUSH-PULL AMPLIFIER

By COLIN COATES (G5CS)*

The amplifier described has a frequency range of 20 to 20,000 cycles per second, and gives 10 watts output. It embodies a two-way mixer, suitable for push-pull or earthed input circuits, and uses a minimum number of components.

DESIGNED as part of a beat frequency audio oscillator, the amplifier to be described is frequently used for high quality radio reception and as a microphone amplifier for loud speaker testing. It has proved to be very free from hum and instability, and has a frequency response (including the output transformer) level to within one decibel between 20 and 20,000 cycles per second. The output is approximately 10 watts. All components required, are likely to be found in the average amateur's junk box, or can be made from spare parts.

The amplifier (built early last year) will be described in detail, and a brief description given of the radio receiver and beat frequency oscillator.

1.8, so that its apparent advantage (one valve only) disappears, because a second valve is required to produce the necessary gain. Of all the phase splitters using two valves, the most suitable for this amplifier appeared to be the cathode phase inverter of O. H. Schmitt(?). The reasons for its choice will be referred to later in this article.

The circuit of the amplifier, as first built, is given in Fig. 1. Several modifications (which will be described) have since been made, but the circuit shown is perfectly suitable for high quality reproduction, and is probably as simple an arrangement as possible.

The first valve, a 6A6, is a mixing stage enabling

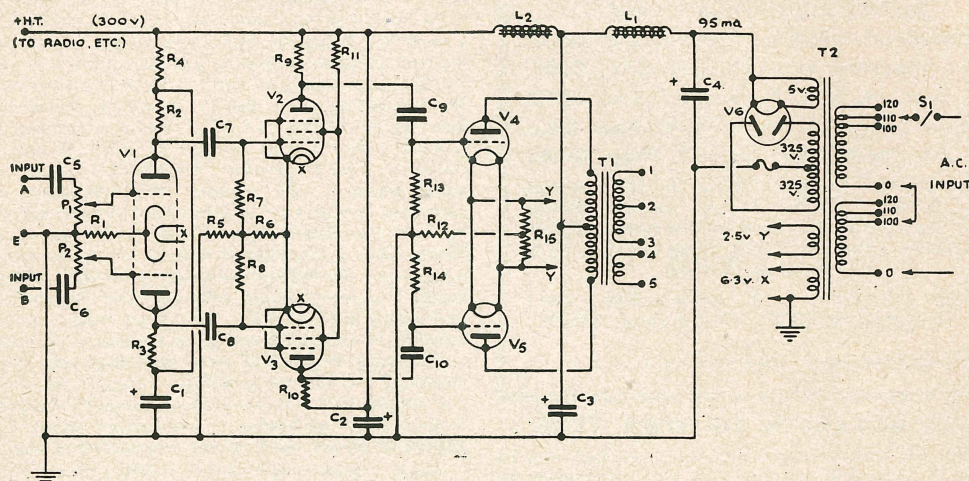


Fig. 1.
Basic Amplifier Circuit.

C1	16 μ F, 300 v.	V1	6A6.	R2, 3	50,000 ohms, $\frac{1}{2}$ -watt.	R9, 10	100,000 ohms, $\frac{1}{2}$ -watt.
C2, 3	8 μ F, 400 v.	V2, 3	6C6.	R4	20,000 ohms, $\frac{1}{2}$ -watt.	R11	250,000 ohms, $\frac{1}{2}$ -watt.
C4	8 μ F, 500 v.	V4, 5	2A3.	R5	4,000 ohms, $\frac{1}{2}$ -watt (see text).	R12	750 ohms, 3 watts.
C5-10	1 μ F.	V6	5Z3 or 80.	R6	300 ohms.	R13, 14	500,000 ohms, $\frac{1}{2}$ -watt.
L1	7H, 140 mA.	R1	1,100 ohms, $\frac{1}{2}$ -watt.	R7, 8	2 megohms.	R15	20 ohms, C.T. wire-wound
L2	50H, 50 mA.					P1, 2	.25 megohm variable.

The Amplifier Circuit

The design of an amplifier these days is determined almost entirely by the type and number of valves available. The writer had a pair of 2A3's, some 6C6's, a 6A6, and a few triodes of medium impedance.

Since the equipment was required mainly for testing and measurement, a high degree of quality, as well as freedom from hum and all forms of distortion, was required. It was decided to use the 2A3's in class A push-pull. As no transformers were available, the output transformer was made on the core of an old power transformer. The power transformer was also home-made, from a modulation transformer.

Several methods of phase splitting are available which do not require the use of inter-valve transformers(?). One popular method is to use a single triode with the load resistance divided between the anode and cathode. The gain of such a stage is about

two separate inputs to be controlled independently. A push-pull input may be applied to A and B, if both volume controls are set to the same position. An input of 0.03 volts is required for full output. The amplifier is thus suitable for use with a transverse current carbon or crystal diaphragm microphone, or with a gramophone pick-up. An extra stage has since been incorporated for use with a crystal sound-cell microphone.

The Cathode Phase Inverter

V2 and V3 form the phase splitter and Fig. 2(A) shows the method of operation. A signal voltage is applied between the grid of V2 and earth. A voltage ($dI.R_k$) is developed across the cathode resistance R_k and this is applied to the reversed valve V3, producing a change in its anode current, opposite in phase to the change in the anode of V2. If R_k is large, the output voltages from V2 and V3 will be very nearly equal. Also the current change in R_k , due to

* 143 Hillcroft Crescent, Oxhey, Watford, Herts.

V3, is equal and opposite to that due to V2, so that there is no current change in R_k due to the input signal voltage. Thus there is no reduction in gain due to negative feedback.

This circuit is based on Offner's differential feedback amplifier, used in biological work⁽³⁾. A practical arrangement is shown in Fig. 2(B). H.F. Pentodes are used to produce high gain, and to improve the differential action. The input impedance R_i must be small compared with the grid resistor R_g . Actually, R_i is the internal resistance and anode load of the preceding valve, about 10,000 ohms. R_g is 2 megohms.

A signal voltage applied to either grid will produce an opposite voltage at the grid of the other valve. As the valves follow the 6A6 input valve, it will be seen that an input signal at either grid of the 6A6 will produce a push-pull output at the condensers C.

This circuit has three main advantages over other transformerless phase splitters ;

1. It is automatically balanced, unlike the paraphase circuit. Out of balance operation cannot occur, as a signal voltage would then appear across R_k and R_s .

2. It has a high voltage amplification, 92 in the practical case described, compared with 1.8 for the single valve arrangement.

3. It is truly differential. It will only amplify out-of-phase or unbalanced inputs. In this, it resembles the transformer coupled push-pull stage, without the expense of the transformer.

Suppose that a signal voltage be applied equally, in phase, to both grids, then we can regard the stage as comprising two valves in parallel. The performance under this condition can be examined by considering one valve alone.

The applied voltage will cause the anode current, cathode current, and screen current and voltage to change in phase with the applied voltage. This leads to two degenerative effects. Firstly, the fact that the screen voltage changes in phase with the anode voltage causes the valve to behave as a triode, giving a much

lower value for the valve amplification factor, μ . For normal inputs, of course, the screen current changes in the two valves are equal and opposite, so that there is no change in the screen voltage. The screens are not decoupled. Secondly, the cathode current change produces an opposing voltage across R_k , reducing the stage gain still further by negative current feedback⁽⁴⁾. The gain of V2 and V3 in the circuit of Fig. 1, for parallel inputs, is less than unity.

Hum and Motorboating

Now, hum (due to incomplete filtering of the anode supply) as well as instability and motorboating (due to feedback from the output valves) are applied to the anodes of the first valve in phase, and therefore are not amplified by V2 and V3. The circuit is thus automatically stable and quiet. The usual precautions must be taken to prevent hum pick-up in the input (grid) circuits of the 6A6, however, because unless the hum induced in both grids is equal and in phase, the induced hum will be amplified. If necessary, hum can be balanced-out by feeding a small A.C. voltage from the heater circuit to the grid of the quieter of the two input grids of the 6A6.

Returning now to Fig. 1, the cathode resistance of V1 is not by-passed. This leads to partial phase inversion, and an increase in the input impedance due to negative current feedback⁽⁴⁾. This effect is of value if the input signal voltage is derived from a high impedance source such as a crystal pick-up or microphone, and results in less attenuation of the higher frequencies.

As a matter of interest, if R_5 is reduced to zero, the phase inversion of an unbalanced input due to the three stages of the amplifier working with un-bypassed cathode resistors, results in a voltage appearing across the idling output valve (measured across half the output transformer primary) of 80 per cent. of the voltage across the driven valve. The hum is not completely suppressed, however. Experiment showed that a value of 3,000 ohms or more for R_5 resulted in

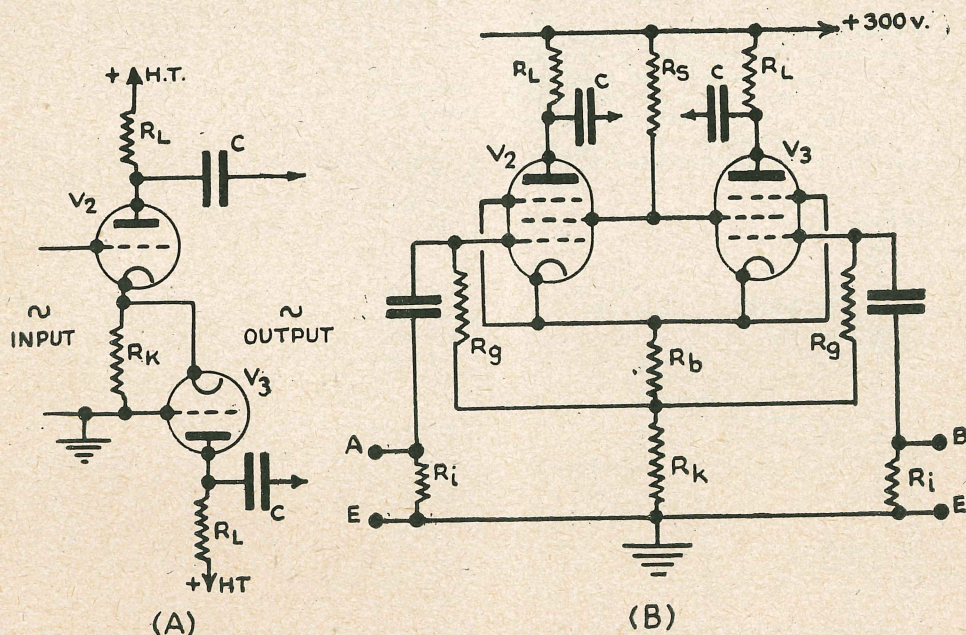


Fig. 2.
Cathode Phase Inverter.

(a) Basic circuit. (b) Practical circuit using pentodes.

a balance within one per cent. with complete hum suppression. 4,000 ohms was used, as a resistor of this value happened to be available.

The Output Transformer

This was wound on a core of one square inch section, obtained by stripping down a small power transformer. The laminations are interleaved, in order to make the primary inductance as high as possible. The measured primary inductance is 15 H.

side on the core. Each former, starting at the centre, comprises:—

350 turns	29 s.w.g.	primary.
160 "	25 "	secondary.
350 "	29 "	primary.
160 "	25 "	secondary.
300 "	29 "	primary.
50 "	22 "	12 ohm secondary.

The corresponding sections are connected in series, and the primary and 500 ohm secondary are centre

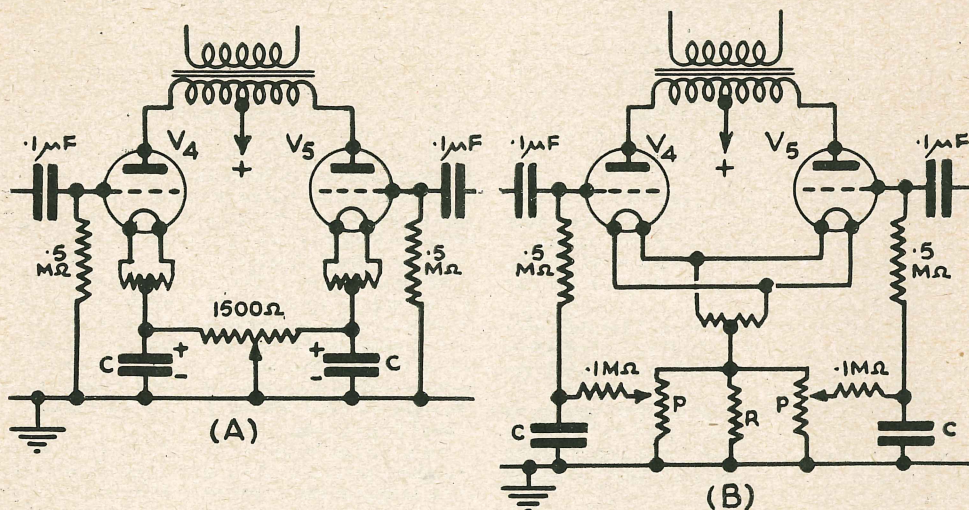


Fig. 3.
Two methods of balancing the output valves.

The wire, 29 and 25 s.w.g. enamel covered, was obtained from a modulation transformer that was unwound to form the power transformer of the amplifier.

The transformer was wound with two secondaries. A 500 ohm secondary was provided as the main winding, since it matches up with the input of a proposed class B modulator, and is generally useful for testing. A 12 ohm winding is used in connection with the beat frequency oscillator.

The windings are on two separate formers, side by

tapped at their inner junctions; i.e. the junctions between the two formers. The primary is thus wound in six sections, and the 500 ohm secondary in four sections interleaved with the primary. This is done to reduce magnetic leakage between the windings for good high frequency response. The frequency response of the 12 ohm winding is not important. It is interesting to compare the performance of the two secondaries:—

C.P.S.	20	100	1000	2000	4000	5500
500 ohm	0	0	0	0	0	0 db.
12 ohm	0	0	0	-1	-4	-6 db.

C.P.S.	7200	8800	12000	16000	20000
500 ohm	0	0	0	0	-0.5 db.
12 ohm	-8	-10	—	—	— db.

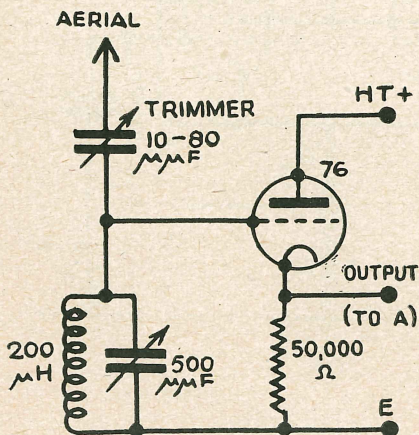


Fig. 4.

Infinite impedance circuit used for radio receiver.

The Power Transformer

This is wound on a core of three square inches section, on two formers side by side. Each former comprises one primary, and half the high voltage secondary. The primary consists of 324 turns 22 s.w.g. D.C.C., tapped at 270 and 297 turns. Each high voltage winding is wound with 830 turns 29 s.w.g. enamel covered.

There are four filament windings, wound on the outside of the main formers; 5 volt (14 turns 18 s.w.g.), 6.3 volt (17 turns 18 s.w.g.), and two 2.5 volt (7 turns 18 s.w.g.). These windings are not centre-tapped, as it is very difficult to find the exact electrical

centre of such a small winding. The reason for having a separate winding for each of the output valves is to enable them to be biased separately, should this be necessary.

For a 200 to 250 volts supply, the primaries are connected in series and for 100 to 120 volts, in parallel. If the primary had been wound in one piece, and tapped for 110 volts, it would have been necessary to use thicker wire for the 110 volt section. Since the power requirement is the same at any mains voltage, the current when operating at 110 volts is double that taken at 220 volts.

Balancing the Output Stage

In order to maintain the inductance of the output transformer at maximum, for good low frequency response, the anode currents of the two 2A3 output valves should be the same. With some valves this means that the two valves require a different amount of grid bias. Two possible methods of adjusting the bias of each valve independently are shown in Fig. 3. Circuit 3(A) requires two separate filament windings, and two large capacity electrolytic condensers of at least 50 μF , 100 volts working. As the writer was fortunate enough to possess two 250 μF 100 volts condensers, this arrangement was used.

Fig. 3(B) shows an alternative method which requires only one filament winding. Condensers C may be of 2 to 4 μF capacity. The total resistance of R and the potentiometers P in parallel should be about 800 ohms. The potentiometers may have any value up to $\frac{1}{4}$ megohm.

It should be noted that it is not necessary to provide separate bias adjustment if the amplifier is to be used only for loud-speaker reproduction. The reduction in bass is quite inaudible on a domestic speaker, even if the anode current of one valve is only half that of the other.

Construction and Layout

As already mentioned, this amplifier forms part of a unit comprising a beat frequency oscillator, radio receiver, and a single stage pre-amplifier for a crystal sound-cell microphone.

The unit is built on a 17 in. by 10 in. by 3 in. chassis and 19 in. by 8 $\frac{1}{4}$ in. panel, and is rack mounted. The layout is not critical providing the output transformer is not too near the power transformer. A slight hum in the first experimental lay-out was traced to direct pick-up in the output transformer. The input circuits and the 6A6 valve are screened.

Radio Reception

For high quality radio reception from local stations, the "infinite impedance" detector⁽⁵⁾ of Fig. 4 is used. The detector valve does not damp the tuned circuit, and a single tuned circuit gives sufficient selectivity to separate the local stations. A diode detector requires a high frequency stage and two tuned circuits to give comparable results.

The infinite impedance detector handles high modulation levels with less distortion than the conventional diode circuit. The cathode resistance should be as high as possible. A smaller resistance is necessary if the stations are more distant. A high resistance reduces sensitivity, but improves linearity, and reduces distortion on high modulation.

The aerial may be coupled by means of a small adjustable condenser, C19, as shown in Fig. 6, or taken to a primary winding wound round the lower end of the tuned coil. The latter arrangement enables a second receiver to be operated in series from the same aerial. Any reasonably efficient broadcast receiver coil may be used.

Output Network

For high quality reproduction, a dividing network (Fig. 5) is used with a moving coil "tweeter" and bass speaker, both of 15 ohms impedance. The network is fed from the 500 ohms winding via a step-down transformer similar to the U.T.C. Varimatch LVM.1. The 100 ohms potentiometer controls the H.F. response. The speakers can be fed directly from the 12 ohms winding if it is desired to restrict the higher frequencies.

A high impedance (crystal) "tweeter" could be fed from the primary of the output transformer through a suitable condenser (.01 μF) and control potentiometer.

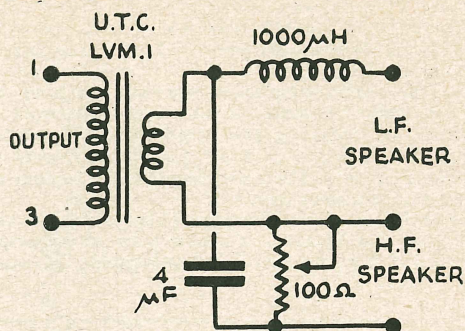


Fig. 5.
Output Network.

The Beat Frequency Oscillator

Fig. 6 shows the complete input circuits for the unit.

The 6A6 input valve is biased to cut-off by R.18, and becomes a push-pull modulator⁽⁶⁾. The oscillator anode supply is stabilised by the S.130 neon stabiliser. The two oscillators are similar in mechanical design so that any frequency drift shall be equal in both. The inductances and tuning condensers were made from a design published in 1937 by C. P. Edwards⁽⁷⁾. The feedback resistors R.16 and R.17 are adjusted for stable oscillation, but their value will depend on the valves and on the tuning coils. They will be of the order of 50,000 ohms.

The fixed oscillator, Fo, is applied to the differential input of V1. Its output is small, and is filtered by L.5, C.16 to remove harmonics. The input from Fo is varied by P.3 to control the audio output. Fv is the variable oscillator, and has a larger output. The output is applied to the 6A6 grids in parallel. The parallel output from the 6A6 is not amplified by V2 and V3, so that it is necessary to remove from V1 output circuit only Fo, and Fo plus Fv. The acceptor circuit L.6, C.17 removes Fo, and the losses of the amplifier at the sum frequency (about 150 kc/s.) remove most of the R.F. If necessary, a low pass filter could be inserted between the anodes of V1 and the grids of V2 and V3, to remove all of the R.F.

It is not proposed to give a detailed description of the construction and adjustment of the oscillator. Many designs have been published, and the interested reader should refer to these⁽⁷⁾ ⁽⁸⁾.

Alternative Components

For those considering the possibility of building an amplifier of this type, there are many alternative valves that could be used. PX 4's are similar to 2A3's. For V1, a 6N7, or two medium impedance triodes, such as the 6C5, 354V, AC/HL, etc., would be suitable, and for V2 and V3, 6J7, SP4, AC/SP.1, etc. For the radio receiver, any triode or triode connected as pentode works equally well.¹

A SEMI-AUTOMATIC "BUG" KEY FOR HOME CONSTRUCTION

By L. W. SMITH* 2FSI

THE key to be described has, in fact, been constructed from odds and ends that were lying about the workshop, and all the necessary materials should be found in any amateur's junk box.

The base was cut from a piece of insulating material, the composition of which is unknown, except that it is red and smelled strongly of rubber while being worked. A convenient size to ensure rigidity is $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. \times $\frac{3}{8}$ in.

With regard to the springs, it must be confessed that the two used on the arm necessitated the somewhat premature demise of a small buzzer. The foregoing, of course, is merely intended as a hint as to possible sources of supply of the necessary materials.

Bridge Section

Figs. 2 and 3 give constructional details of the bridge and the method of mounting. In the original model, the pivots were made from two 4BA grub screws, with the ends turned down into points. The T pieces were made from $\frac{3}{16}$ in. brass and the supports of fibre. These supports may be of metal if desired, but fibre is easier to work.

The left hand support, Fig. 3, carries the spring which returns the arm from the dot position. This was made from a few inches of 26 gauge piano wire. Several types of spring were tried, but eventually the flat spiral was adopted as the most convenient form. Each support is drilled and tapped 4BA to accommodate the stops.

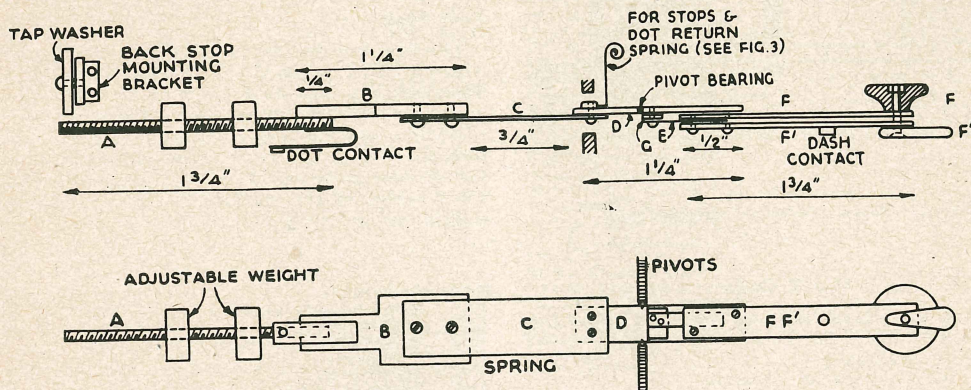


Fig. 1.

Illustrates details of operating arm.

The Arm

Fig. 1 shows the construction of the arm in detail, together with the dimensions used for the original model. The section carrying the weights was made of 4BA threaded rod, but plain rod and grub screw fixing for the weights may be employed if desired. This rod (A in Fig. 1) was sweated to B, together with the phosphor bronze spring contact. The only excuse for the use of B was that no other satisfactory method of attaching A to the spring (C) could be found at the time. A and B, therefore, form the pendulum, with C attached to the main lever (D), which is carried by the pivots.

The spring (E), which carries the dash arm, was mounted on a small piece of brass (G), in order to raise the spring from the surface of D, and allow F to be slid underneath. F and F1 are two similar strips of brass which are bolted together to clamp the spring (E) between them, thus forming the dash arm. It should be noted here that before mounting F and F1 the spring should be bent towards the surface of D, so that when the dash arm is mounted, it will be held firmly against the main lever (D), until it is pressed. A little experiment will be required to find the most suitable tension for this spring.

The bearings for the pivots consist of two holes made with a No. 50 drill for a depth of $\frac{1}{8}$ in. in the edges of D. It is important to see that these holes are drilled accurately one above the other; if they are out of alignment the lever will not rest horizontally.

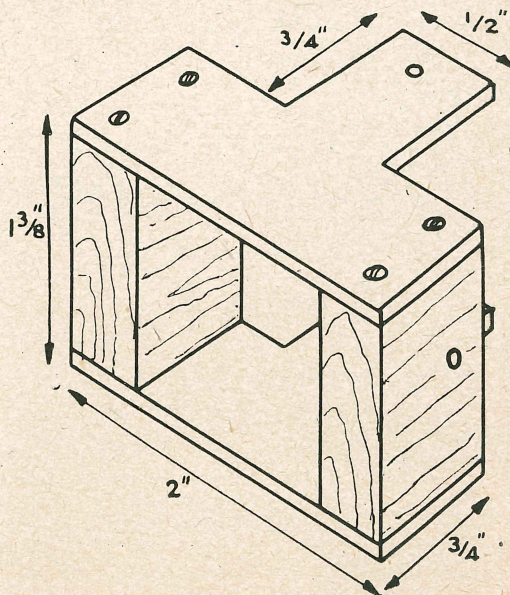


Fig. 2.

Constructional details of the bridge, full size.

* 161 Old Dover Road, London, S.E.3.

One other point should be noted here. If it is desired that the lever carrying the finger and thumb rests should be central, the main lever (D) must be slightly off-centre. In other words, the pivots must be set slightly to one side of the T piece, as shown in Fig. 3.

The pivots should be adjusted so that there is no vertical play in the arm, but not so tight as to cause undue friction in the bearings.

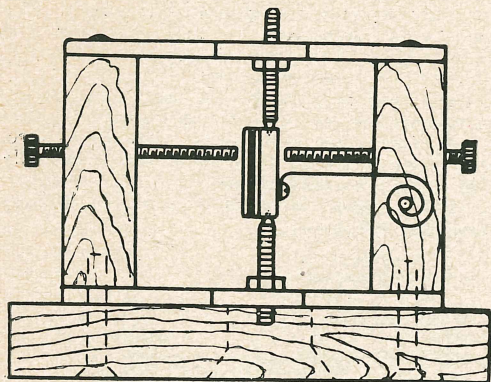


Fig. 3.
Method of mounting bridge and associated parts.

The Z Code

Mr. F. W. Garnett, G6XL, has kindly sent a copy of the Z Code (prepared by G6FY) which we publish for the interest of members.

ZAL Alter your wavelength.
ZAN We can receive absolutely nothing.
ZAP Please acknowledge.
ZBN Break in and go ahead.
ZCO Send by code, groups once.
ZCS Cease sending.
ZCT Send by code, groups twice.
ZCOW? Are you in direct communication with . . . ?
ZDD Make your dots and dashes thus . . .
ZDM Your dots missing.
ZDU Our duplex is out of order.
ZFA Automatic system out of order.
ZFB Signals fading badly.
ZFS Signals fading slightly
ZFT? What are the conditions for triplex ?
ZGS? Your signals getting stronger
ZGW Your signals getting weaker.
ZHA? How are your conditions for automatic reception ?
ZHC? How are receiving conditions ? (also "hr QTC").
ZHS Send at rate of . . . w.p.m.
ZHY We have your . . .
ZKQ Let us know when you are ready to resume.
ZLB Make long breaks.
ZLD Make long dashes.
ZLS We are disturbed by lightning.
ZMO Stand by a moment.
ZMQ } Stand by for . . . or "wait."
ZHQ }
ZMP Automatic transmission bad.
ZMR Your signals moderately strong and readable.
ZNB Not receiving your breaks ; will send twice.
ZNG Conditions not good for code reception.
ZNN Nothing more for you.
ZOH? What traffic have you on hand ?
ZOK We are receiving at maximum speed (or "O.K.").
ZPE Send everything (or send in plain language).
ZPO Send plain language, once.
ZPP Send text only in plain language.
ZPR Your signals readable.
ZPT Send plain language, twice.
ZRC? Can you receive code ?
ZRO? Are you receiving at maximum speed ?
ZSA Stop automatic traffic.
ZSB Your signals blurred.
ZSF Send faster.
ZSG Stop automatic traffic and examine transmitter.

Contacts

The contact screws as used in buzzers or electric bells, fill the bill perfectly. Two will be required, and they should be mounted on small brackets so that the gap between the contact and the dash arm is about $\frac{1}{16}$ in. and that between the other contact and the dot spring about $\frac{1}{8}$ in. The last mentioned gap must be carefully adjusted to ensure an even run of dots when the key is operated.

The two contact screws should be connected together, preferably by under-base wiring, or by connecting a thin strip of metal between the two brackets, supported by the fibre pillar of the bridge section. This point forms one terminal of the key. The other terminal is taken from the arm. In the original model, a telephone type terminal was mounted on top of the bridge section, the circuit being completed through the pivots.

The original key has given good service, and with a little care it is possible to make quite a professional looking job, especially if the metal parts are plated.

Rear Stop

The last item is the rear stop, the only function of which is to damp out the oscillations of the pendulum when the key has been returned to rest. For this purpose an unused rubber tap washer was fitted on to a bracket, and the whole mounted in such a position that the end of the weight arm just presses on it in the neutral position. It will be necessary to adjust the position of the washer "in situ" to ensure a smooth action of the whole key.

ZSH Static heavy.
ZSJ Stop automatic traffic, owing to jamming.
ZSO Send words once.
ZSR Signals strong and readable.
ZSS Send slower.
ZST Send words twice.
ZSU Signals unreadable.
ZSV Speed varying.
ZSW Stop automatic traffic, signals too weak.
ZSX Stop automatic traffic, static too strong
ZTA Send by automatic.
ZTF Send twice, fast.
ZTH Send by hand.
ZTI Temporary interruption.
ZTV Transmit rapid automatic.
ZUA Conditions unfavourable for automatic reception.
ZUB Unable to break in.
ZVF Your frequency varying.
ZVP Please send V's.
ZVS Signals varying in strength.
ZWC Crackling atmospherics here.
ZWD Send word . . .
ZWO Send words once.
ZWR Signals weak but readable.
ZWT Send words twice.

OUR FRONT COVER

THE UNIVERSAL AYOMETER (Model 7) is well-known as a compact and conveniently portable self-contained multiple measuring instrument. It provides 46 ranges of direct readings and is guaranteed accurate to B.S. first grade limits on D.C. and A.C. from 25 to 100 cycles. It is one of a useful range of "AVO" electrical testing instruments, particulars of which are obtainable from the manufacturers, The Automatic Coil Winder & Electrical Equipment Co., Ltd., Winder House, Douglas Street, London, S.W.1.

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R.S.G.B., 16 ASHRIDGE GARDENS, LONDON, N.13

WAK AND BLUE

● Cpl. E. J. Roberts, **4021**, now at H.Q. Coastal Command, R.A.F., receives our congrats. on his recent marriage. He reports that Bob Dawson, **W4DSY**, and his son are both in the U.S. Civil Air Corporation and engaged in coastal patrol work, and that Dorothy Hall, **W2IXY**, is expecting to go into war radio work very shortly. She is awaiting her call sign for use in the war emergency network system which has been approved by the U.S.A. Government. New York state calls are expected to be in the series WNYC followed by a number. The work will be carried out on 112 Mc/s. or thereabouts. Cpl. Roberts would like to hear from any member who logged and obtained verification from KC4USA. He received a card nine months ago confirming his reception of the station two years earlier.

● A. Stewart Clacy, **G6CY**, until last month acting T.R. for Brighton and Hove, is now in the R. Signals. Correspondence should in future be addressed to him c/o Kingstone, Hilltop Road, Earley, Reading, Berks.

● Norman Horrocks, **2CUZ**, now a Sergeant attached to an A.M.E.S. with the P.A.I. Force, sends greetings to all old friends. He frequently meets GW3AJ and a few other amateurs who are in his "outfit".

● In spite of much marching and motoring the Advanced Air Headquarters Amateur Radio Society continues to function. L.A.C.J.D. Trelease, **BRSS515**, energetic scribe to the Society, reports by airgraph that he manages to keep in touch with many amateurs and promises to furnish a group photograph at an early date. When the Cairo "do" took place he and his colleagues were many hundreds of miles away from that town. He hopes to visit SU1WM shortly.

● Sgt. R. Cretnay, **2BKO** (R.A.F., West Africa) wishes to be remembered to 2DRR serving with the R.A.F. in Gibraltar, and to 4HK now in Cairo.

● We learn from George Gray, GM3NG, that W./Cmdr. Johnson, D.F.C., **SUIAF** (ex G3JN) is at present at a M.E. Staff School with S./Ldr. Stan Henton, **G5VU**, and **VQ4CHS** (R.Sigs.). They have "unanimously agreed that ham radio will not be allowed a chance after the war"! It's a good thing the "Three Pessimists" have not the same responsibilities to the membership as has the Council!

● Cpl. J. Cairns, **G3UC**, serving in India with the R. Signals reports personal QSO's with W7FTY, W8PVI and W9ROF. He has met no G hams but has heard of someone who bogusly claims to be G8WC.

● F./Lt. John Curnow, **G6CW** who, until recently, was Chief Radio Officer with Advanced Air H.Q., P.A.I. Force, is now with an R.A.F. group in the M.E. During recent months he has visited Cyprus, the Caucasus and Persia, but very few hams were contacted until he made a 1,600 miles trip to attend the Cairo conventionette last December. Whilst there he visited W./Cmdr. Scott Farnie, **GW5FL**, in hospital. John wishes to be remembered to G2WS and all old friends. He laments the absence of *real* news from District 4 notes, which he says only tell us that "Bill Jones tested out a superhet"!

● L.A.C. C. R. Chick, **G3JF** back in England after a spell of duty in West Africa, would like to hear from old friends, who should write c/o 283 Bean Road, Brighton, 7. Whilst abroad he met Cpl. Wodehouse, **G4CA** and L.A.C. Constable, 3522. He seeks news of G3WR and 3YY.

● A.C.2 R. W. Fisher, **2DZN** (whose home is in District 15) reports by air mail from the P.A.I. Force. Unfortunately our friend, "the sensitive censor," got busy with his scissors and removed all call signs, with the result that no details can be given of his ham contacts. He mentions a meeting with someone who took part in pre-war Snowdon field days. One of his pals, having made a pukka variable condenser from a piece of aluminium which he was able to scrounge, is now the proud possessor of a neat little receiver which brings in the old country. Fisher sends 73 to those District 15 members who remember him.

● Sgt. G. V. Catt, **G4FP**, writing en route to a more or less unknown destination, reports meeting Lt. Edwards, **G3WH** aboard ship. The latter asked that his 73 be conveyed to G2MT.

● S./Sgt. P. H. Gledhill, **4851**, now awaiting a call to an O.C.T.U. for a R.E.M.E. technical commission, sends greetings to G6BD and old friends serving in Gibraltar.

● A.C.1 J. H. Herd, **4859**, who was among the vanguard to reach North Africa, managed to collect a complete radio installation from a JU88 after a crash, but had to dump it when his unit moved. He had to pay 300 francs in Algiers for a loud speaker to operate a 4-valver he constructed to receive news from home, but at the time this only represented £1 in British money. To-day the rate of exchange has dropped to 200 francs to the £1.

● Ft./Lt. R. L. Markham, well known to the DX fraternity as **G6MK**, is now in an isolated part of Arabia, treating ailing airmen for a variety of ills varying from heatstroke to malaria. We gather the QRA is Trucial Oman on the Persian Gulf which, if our memory serves us correctly would represent a piece of new DX if "Marky" will stay there until we can get on the air again!

● Friends of Sgt. H. W. Holloway, **2DGW**, 105 Northfield Road, Waltham Cross, Herts, wish to be interested to hear that he is now father of a Junior op—Kenneth Harry. He is now in GM.

● C. T. Fairchild, **G3YY**, who has now been invalidated out of the R. Sigs. sends news of 2CMH (N. Africa) and G3LK (Malta). 3LK has just completed a "Cook's Tour" of Egypt, Palestine, Syria and the Sudan.

● From Cpl. Pat. Whittle, **2AOW**, we learn that 4AY, 5NU, 2HFC and 5990 are associated with him on the instructional staff at No. 3 R.S. Members serving at C.B. are asked to contact 2AOW in H12 S.H.Q. with a view to arranging a meeting in the summer.

● An airgraph from A.C.1 A. Goode, **2DTC**, brings the news that the amateurs attached to his station were entertained at the Beurwaage Hotel, Alexandria, on Sunday, March 15, by SU1WM 1SG, IRD, 1AX. Others present included G2GB, 3HJ, 5OI and 6CW. Mr. Marsh announced that the next Cairo Conventionette would take place on Thursday, May 6—presumably in the evening at the Britannia Hotel.

Did you know?

That an accumulator is fully charged when it is smoking freely? That if you reverse the accumulator leads to a motor generator it takes power out of the generator instead of putting it in to the motor?

That reactance is a condenser, because it builds up the back E.M.F.?

That a typical straight receiver H.T. supply is about 200 amps? That in a dry cell the positive plate is surrounded by a sack of carbon monoxide?

That in a Milne's unit the acid is diluted with potassium hydrate?

That there are three types of Megger, (1) the Bridge Megger, (2) the Wee-Megger (3) the O'Megger.

That the anode of a valve is used to stop the electrons breaking the glass?

That I.C.W. is radiated by a transmitter on wheels?

That a condenser is used to obtain high results?

These gems were sent in by a member who is teaching Basic Theory at an R.A.F. Radio School who assures us that they were given as replies to test questions!

73.

G2IK (R.A.F.), to G3BN, YH, YK, 4LZ, 5JU, KT, UH, WI, 6RB, 2BYU.

G3JO (R.A.F.), to G3HS, NC, GS, 4LW, 5BM, JU, LO, 6LM, 8DA, ML, PX, TK, 2BVR and CVA.

G3KB (R.A.F., Egypt), to G3YK, 5LW, 6JB, 8BK, UO, 2FIZ, SU1AX, 1WM and all old friends in District 2.

G3UC (R. Sigs.), to G3RO, ZO, 5QO, XT, 8UB, WC, WT.

G3XC (Slough), to G3UH, 4IH, 6KL, 8HF, PD, QJ, SB.

G3YY (c/o "Dwygyfichi," Leeside, Barnet, Herts), to all old 56 Mc./s. friends.

G4FJ to G3PR, PY, 4CJ, FD and GW4CX.

G6XM (R.E.M.E.), to G2MR, NH, NS, YL, 3RN, 5MA, NF, 6BP, GS, LK, NA, 8LY, SU6KW.

G8NL (R.A.F.), to G2GA, JA, 3BN, CJ, YJ, ZN, 5KT, 6QA, 8NF and QS.

G8UO (Keighley), to G3OU, PJ, TO, UP, XT, 4CN, 6OB, SO, 8RF.

2AUR (R.A.F.), to BRS.3783, 4830 and District 17 friends.

2DBF (Maidenhead), to G6FZ, 8TB, 2BQC, 2HNO.

2DGW (Waltham Cross), to G4HJ, LV, NV, 5HO, 8SK and 2FUU.

GM2NQ to GM4MM, 2793, 2929 and 4315.

ARE YOU AT

No. 1 R.S. or No. 8 R.S. ?

★ If so, you are invited to attend Meetings in Hut 165 (No. 1 R.S.). Details from Cpl. Chadwick (G8ON), Cpls.' Club, East Camp.

MEMBERS ON ACTIVE SERVICE

Forty-third List

WE publish below our forty-third list of members on Active Service. Additional details and corrections should be advised to Headquarters as early as possible. The present list contains information received up to April 1, 1943.

Rank and Name	Regiment or Branch of Service	Pre-war Call or B.R.S.
Cpl. L. Armstrong ..	R.A.F.	6086
L.A.C. G. M. Barker ..	"	6083
A./P.O. N. G. Batty ..	"	4889
Sgt. C. M. Belchambers ..	"	6149
Cfn. J. Beaumont ..	R.E.M.E.	6096
L.A.C. J. Birrell ..	R.A.F.	6066
Cpl. A. Blamires ..	"	6080
Sgt. R. Bland ..	"	4932
F./Sgt. S. Bolton ..	"	6185
A.C.2 S. P. Bourne ..	"	6081
A.C. R. L. Bratt ..	"	6136
L.A.C. R. J. Brien ..	"	6132
L./Cpl. E. Burley ..	R. Sigs.	6115
Cpl. J. D. Cairns ..	R.A.F.	2FOV
Cpl. H. T. Carey ..	"	6151
Sig. J. N. Carter ..	R. Sigs.	6174
Sgt. E. Cavill ..	R.A.F.	2CRR
Fus. W. H. Coburn ..	R. Fusiliers	4880
L.A.C. G. T. Colsell ..	R.A.F.	6091
L.A.C. M. S. Crowthall ..	"	6006
Dvr. E. S. Curtis ..	R.A.S.C.	6177
A.C.1 F. R. Dean ..	R.A.F.	6088
L./Cpl. H. M. Dorward ..	R. Sigs.	6100
Sgt. W. F. Dove ..	R.A.F.	6104
Cpl. F. D. Dyer ..	R.E.M.E.	6178
L.A.C. A. S. Eastaugh ..	R.A.F.	4854
A.C.1 T. O. Ellison ..	"	6183
F./Sgt. C. B. Ellwood ..	"	2F80
A.C.2 D. G. Evans ..	"	6109
Sig. E. W. Fair ..	R. Sigs.	4095
W./O. H. L. Fielding ..	R.A.F.	4836
L.A.C. R. Finn ..	"	6097
C.P.O. Tel. G. R. Fletcher ..	R.N.	BERS220
Cpl. S. M. Forrester ..	R.A.F.	4872
P./O. S. E. H. Freeman ..	"	6093 ex Y12FU
A.C.1 D. Garfitt ..	R.A.F.	4906
Sig. R. J. Garnham ..	R. Sigs.	6090
Cpl. H. A. Grant ..	"	63KK
P./O. Tel. C. F. Gray ..	R.N.	6094
Armt. S./Sgt. A. W. Green ..	R.E.M.E.	6101
Cpl. G. H. Green ..	"	6049
L.A.C. J. Greenwell ..	R.A.F.	4313
L.A.C. W. J. Grey ..	"	6082
Lieut. D. W. J. Haylock ..	R. Sigs.	6062
Cpl. C. Heys ..	R.A.F.	6150
Cpl. H. W. Holton ..	R. Sigs.	6123
Cpl. F. Huggins ..	R.A.F.	6084
P.O./Tel. W. E. Iddon ..	R.N.	6121
L.A.C. R. S. Jay ..	R.A.F.	4861
Cpl. D. G. Jones ..	"	6148
A.C.1 J. B. Jones ..	"	2CUJ
P./O. W. R. Joss ..	"	2FOJ
A.Q.M.S. J. G. Keeley ..	R.E.M.E.	6133
P./O. A. D. Kent ..	R.A.F.	6070
L./Cpl. P. Kessley ..	R.E.M.E.	4833
Lieut. J. A. Keyworth ..	R.N.	BERS497
A.C.2 E. J. Kimpton ..	R.A.F.	6125
Sig. L. C. Kraling ..	R. Sigs.	3058
Sig. T. N. Lloyd ..	"	63SL
Cpl. E. A. Lomas ..	R.A.F.	1579
Cpl. M. De Luovich ..	"	4909
A.C.2 E. A. L. Malcolm ..	"	6171
F./Lt. R. L. Markham ..	"	G6MK
Gnr. L. Marsh ..	R.A.	6122
L.A.C. P. S. Medgett ..	R.A.F.	6108
W./O. C. G. Morrison ..	"	2ADJ
F./Sgt. T. K. Moreman ..	"	4785
L.A.C. S. V. Moseley ..	"	6098
Cpl. L. Mottershead ..	"	4090
Lieut. R. A. G. Muir ..	R.E.M.E.	6078
L.A.C. L. J. Murphy ..	R.A.F.	6187
Capt. P. G. M. Murray ..	R.E.M.E.	6065
Sgt. W. McClue ..	R. Sigs.	6120
Sgt. M. J. McGivern ..	R.A.F.	6155
Sgt. A. Ogden ..	"	GW50D
Cfn. D. F. Parr ..	R.E.M.E.	4883
Pte. J. Pauley ..	G.S.C.	4856
A.C.1 W. Percival ..	R.A.F.	6075
L.A.C. D. K. Pescud ..	"	6175
A.C.2 D. S. Pettet ..	"	4988
P./O. R. L. Portman ..	"	6085
A.C. F. A. R. Prescott ..	"	6118
Sgt. R. Pritchard ..	"	4882
L./Cpl. K. S. Richards ..	R.E.M.E.	4967
Cpl. J. C. Y. Robertson ..	"	GM4II
Sig. W. Robson ..	R. Sigs.	6188
Cpl. E. G. Rowland ..	R.A.F.	6164

Rank and Name	Regiment or Branch of Service	Pre-war Call or B.R.S.
L.A.C. S. Rundle ..	R.A.F.	4901
Cpl. D. R. Sawyer ..	"	6154
Spr. B. M. Scudamore ..	R.E.	G6BS
A.C.2 E. P. Sharp ..	R.A.F.	6077
W./O. R. W. Shepherd ..	R.E.M.E.	6099
L.A.C. W. Stevens ..	R.A.F.	6153
A.C.1 K. Styles ..	"	6067
Sgt. C. J. Sykes ..	R.E.M.E.	6124
Sig. J. Teasdale ..	R. Sigs.	G8VV
Cpl. I. I. Protheroe-Thomas ..	R.A.F.	6129
A.C.2 K. Thomas ..	"	6172
Lieut. B. F. Tucker ..	Rec'ce	6113
A.C.2 R. Vreeland ..	R.A.F.	5932
L./Cpl. H. J. Walker ..	R. Sigs.	4888
Cpl. D. J. Waller ..	R.A.F.	6114
A.C. B. V. Williams ..	"	6176
Ldg. R./Mech. W. R. Wilshire ..	R.N.	6117
L.A.C. J. D. White ..	R.A.F.	6119
A.C.1 J. F. White ..	"	4852
F./Sgt. R. C. White ..	"	6116
F./Sgt. T. Whitley ..	"	4731
Cpl. T. S. Wordsworth ..	"	4898
L.A.C. N. F. Young ..	"	G8VM
P./O. A. T. Yule ..	"	6068

R.S.G.B. Prisoners of War Fund

THANKS.—The General Secretary acknowledges with thanks, on behalf of Council, receipt of donations from:—W. T. Larbey, 2DWW, £1; S. Allen, G8TR, 2s. 6d.; Anon, 12s. 6d.; A. G. Hales, G3GK, 10s. 6d.; 2CNC and Office Friends, £2 10s.; H. Punch, G6UR, 5s.; H. Gauthy, G6GA, 5s.; F. J. Grant, 4867, 6s.; Gerald Marcuse, G2NM, £10; No. 1 R.S. (per G8ON), 3s.; R. G. Taylor, 3619, 2s. 6d.; G. F. Gregory (exG5PZ), £1; A. Boa (ex SU5BO), £1; C. R. Chick, G3JF, 8s.; G8CV and Family, 12s.; G. A. Hook, 2CIL, and Wife, 10s.; Swindon Boy Scouts via L. E. Drake, 175s, 10s.; R. L. Markham, G6MK, 18s. 6d.; No. 1 R.S. (per G8ON), 7s.; A. Epton, 4298, 5s.; J. Paine, G6PR, 8s. 3d.; Anon, 4s. 2d.; Mrs. Quartermaine, £2 2s.; A. J. Mathews, G6QM, 5s.; Edgware Short Wave Society (per G3HT), £2; District 13 (per G3ST), 11s.; District 7 (per G2DP), 10s.; District 12 (per G5QF), 14s.; W. T. Larbey, 2DWW, 10s.; District 8 Meeting, Cambridge (per G5JO), £2 10s.; C. Hartas, 4976, 5s. Receipts to date, £784 16s. 2d. Expenditure to date, £269 16s. 5d. Balance in hand as at March 31st, £514 19s. 9d.

ANNIVERSARY.—Old timer Gerald Marcuse, G2NM, celebrates this year the 30th anniversary of his entry into the realms of Amateur Radio. To mark this historic occasion he has forwarded a cheque for £10 to the Fund. Thanks Gerry.

PARCELS.—Parcels were sent in February to 22 members and 4 non-members.

THANKS BOYS.—Swindon Boy Scouts recently staged a model wireless exhibition. A collection taken during the exhibition produced 10s. for the R.S.G.B. P.O.W. Fund, which sum was kindly forwarded to Headquarters by Mr. L. E. Drake, 1753.

News from the Kreigies

Information is to hand that Lt. E. W. Rodwell, R.N.V.R., is a prisoner of war in Germany. Although a non-member since 1939 he qualifies for parcels under the new arrangement, as he held a full call prior to the war. In a post-card to Headquarters dated February 3, Sgt. R. W. Spink acknowledges with grateful thanks receipt of four parcels. "A smoke" he says, "makes all the difference in the world under these conditions." He sends 73 to all old friends.

Congrats

- To Denis and Eileen Heightman, G6DH, upon the safe arrival of a second son, Nicholas John, born March 9.
- To F./Lt. W. G. "Jack" Pyke, G6PK, who was recently Mentioned in Despatches. He is now with the B.N.A.F.
- To old timer Brian Warren, G6CI, of Kenilworth on the arrival of a junior operator—Roger Brian—on March 8.
- To Mr. and Mrs. C. H. Lambourn Edwards, G8TL, on the safe arrival of a third daughter on March 20. G8TL and his wife have been doing yeoman work in connection with the P.O.W. Fund.
- To Hugh Phillips, GW4KQ, (Deputy D.R. for South Wales) and his wife on the birth of a son, David Huwr on March 12.
- To Mr. and Mrs. Albert Clipstone, G8DZ, of West Bridgford, Nottingham, on the safe arrival of a daughter on March 31.

Welcome Home

Wing-Commander Rowley Scott Farnie, GW5FI, is now home after his air crash in Egypt. Although he will be receiving medical attention for some time he hopes to take his seat on Council next month.

HEADQUARTERS CALLING

February Council Meeting

Resume of the Minutes of a Council Meeting held at the Institution of Electrical Engineers, London, on Monday, February 22, 1943, at 6 p.m.

Present.—Mr. A. D. Gay (President), Messrs E. L. Gardiner, A. E. Watts, H. A. M. Clark, A. J. H. Watson, D. N. Corfield, J. Hunter, G. A. Jessup, S. K. Lewer, W. H. Matthews, J. W. Mathews, W. E. Russell, E. H. Simmonds, W. A. Scarr, and J. Clarricoats (General Secretary).

1. One hundred and eighty-seven applications for membership were accepted (40 were supported by references and 147 were sponsored by Corporate Members). The total included three Associates (Juniors).

2. It was reported that the R.S.G.B. Prisoners of War Fund had been exempted from registration under the War Charities Act.

3. Mr. H. H. Phillips, GW4KQ, was appointed Deputy D.R. for South Wales (District 11).

4. It was reported that the B.B.C. had agreed to transmit a message of greetings to the China Amateur Radio League on the occasion of China Amateurs Day—May 5, 1943.

5. It was reported that a meeting had taken place between G.P.O. and Society representatives in connection with post-war licensing matters. A statement for publication dealing with the matters discussed was approved.

6. Mr. E. H. Simmonds, G8QH, was appointed Press Liaison Officer.

(See paragraph "Amateurs and Public Relations" published below.)

Broadcast to China

In connection with China Amateurs Day to be celebrated in Chungking on May 5, a message of greetings from our President (Mr. A. D. Gay) to the amateurs of China, will be broadcast that day in the B.B.C. Chinese Service between 1315 and 1330 G.M.T. (1515–1530 D.B.S.T.) over GSP (19.60 Metres, 15.31 Mc/s.). The message will probably be transmitted in English and Chinese.

The broadcast has been arranged in collaboration with the Far Eastern Section of the Ministry of Information and the Eastern Service Director of the British Broadcasting Corporation.

Amateurs and Public Relations

To many—in fact to the majority—of the public, the work and usefulness of Amateur Radio is practically unknown. Yet when the story of our war-effort is fully documented it will be found that the amateur movement provided a reservoir of knowledge and experience and enthusiasm that has contributed enormously to the efficiency of Signal services in all three Armed Forces.

Council feel that every opportunity should be taken to keep the public informed, through the press, of amateur activities where these have public news value. The spread of such news can only strengthen our position after the war. In this connection, Mr. E. H. Simmonds, G8QH, of 17 Roedean Crescent, Southampton, S.W.15, has been appointed Press Relations Officer for the Society.

Mr. Simmonds will be glad to hear from any member who comes across news that might be dealt with from this angle. Under this heading come (a) outstanding exploits by individual amateurs, where these can be duly authenticated; (b) items in local newspapers or magazines referring to amateur radio; (c) incorrect or inadequate references to amateur radio work which could be corrected or amplified. Needless to say, much of the work that amateurs are doing to-day cannot be publicised because of security restrictions.

Every member should remember that he is himself a "public relations department" for the Society and the amateur movement. No opportunity should be lost of spreading the news that amateur radio is something more than a spare-time hobby, that it is in fact a first-class training ground for competent radio technicians in peace as well as war. And, moreover, a fruitful source of invention and discovery. Always remember that the more genuinely useful we are known to be, the stronger will be our case for communication privileges after the war.

Planning the Post-War Amateur Station

At the meeting to be held on May 1 at the Institution of Electrical Engineers, London, Mr. P. W. Winsford, G4DC, will open a discussion on Planning the Post-War Amateur Station. In order to obtain a wide variety of views on this important subject the General Secretary will be pleased to hear from any member who is willing to contribute to the discussion. In particular he will appreciate it if professional members (such as an architect, builder, electrical engineer and component designer) will offer their services in this connection. It is also hoped that the wife of a member can be prevailed upon to express the views of the fair sex! Names should be sent to the General Secretary to reach him not later than April 28.

Clydevale Radio and Electrical Experimental Club

The Council has been pleased to grant affiliation to the above Club. The Hon. Secretary is Mr. A. P. Smith, 3 MacDonald Street, Rutherglen, Glasgow.

I.E.E. Meeting

Although less than 20 members were present at the March meeting to hear Ft./Lt. T. R. Theakston, 2DBK, give his second Radio Maths lecture, the subsequent discussion proved conclusively that the subject had provided much food for thought.

In the absence of the President (who sent a message expressing his regrets at not being present), the Chair was taken by the General Secretary, who at the conclusion of the lecture, proposed a vote of thanks to Ft./Lt. Theakston and warmly welcomed Capt. the Rev. Joseph Andrew, W4EFG, Capt. George Collier, W9CWI and Lt. Arthur Gee, G2UK (Representative for District 17).

Messrs. Cooper, Milne and Laister were among those who contributed to the discussion.

Side Slip

We regret that Figs. 5 and 6 used to illustrate Mr. Heap's article "The Magic Eye and its Applications" published last month, were transposed. The value of R8 was also omitted from the caption beneath Fig. 5. This is 10,000 ohms.

Abbreviated Numerals

Although abbreviated numerals are frequently listed in Morse instructional pamphlets, their practical use seems to be neglected. Mr. B. W. F. Mainprise, G5MP, 43 Brunswick Hill, Reading, Berks, would like to hear from any member who has used them, or heard them being used, for commercial or official purposes.

Mechanic Wanted

A mechanic is urgently required at a R.N. Air Station in the south-west of England for maintaining medium power transmitters. Preference will be given to an ex-Service man, preferably Signals. Apply for interview to A.C.E. c/o R.S.G.B., 16 Ashridge Gardens, London, N.13.

NEW MEMBERS

Life Members

W. J. BUTLER (G5LJ), 32 Pilkington Avenue, Sutton Coldfield.
H. H. THOMPSON (2FXK), "Rosedene," Walsall Road, Aldridge.

Home Corporates

* D. W. F. WEDDERSPOON (G2WZ), 13 Tretawn Gdns., London, N.W.7.
H. A. GRANT (G3KK), Alby Kennels, Mumford, Nr. Thetford, Norfolk.
F. S. CLOSE (G4FU), 56 Mannheim Rd., Toller Lane, Bradford.
* J. C. Y. ROBERTSON (GM4II), 23 Thorn Dry., Bearsden, Glasgow.
* W. O. WIGG (G5OW), 7 Park Crescent, Wollaton, Nottingham.
* W. LEE (G6LZ), 13 Carnley St., West Melton, Rotherham.
Ft./Lt. R. L. MARKHAM (G6MK), R.A.F.
* T. O. I. PICK (G8GL), c/o Stead, Aiskew Bank, Bedale, Yorks.
B. E. ROGERS (G8LC), 272 Duques Avenue, Theydon Bois, Essex.
K. E. V. WILLIS (G8VB), 33 Westergate Road, London, S.E.2.
J. TEASDALE (G8VV), 16 Mowbray Road, South Shields.
A. E. REEVE (G8WN), 30 Ransome Road, Ipswich, Suffolk.
C. G. MERRISON (2ADJ), 61B Raleigh Street, Walsall.
R. S. RIDLEY (2ALR), Rosedene, Doncaster Rd., Pontefract.
P. A. ARNOLD (2ARR), 155 Brunswick Road, London, W.5.
B. CAVILL (2CRR), 31 Cockshott Lane, Armlay, Leeds, 12.
F. ATKINS (2DJP), 288 Belswains Lane, Hemel Hempstead.
* E. W. J. THEOBALD (2DWI), 10 Eastbury Road, Bristol, 5.
W. C. LONGMAN (2DYY), 7 Sandown Road, Somerford, Christchurch.
* W. R. JOSS (2FOJ), 22 Beaufort Gdns., London, N.W.4.
* J. D. CAIRNS (2FOV), Rosebank, Well Road, Bridge of Alan, Stirlings.
M. JACKSON (2FMU), 84 Abbey Street, Accrington, Lanes.

Home Corporates (B.R.S.)

G. H. GREEN (6049), 4 Welbeck Trc., Ashington, Northumberland.
A. V. BRANDLE (6050), 7 Willow Walk, London, N.21.
W. J. WEST (6051), George Square, Coupar, Angus.
R. G. SWORD (6052), George Square, Coupar, Angus.
P. D. WILLIAMS (6053), 30 Cromwell Rd., Beeston, Notts.
C. J. ELEY (6054), 129 Harrington Dve., Lenton Sands, Notts.
E. GLENN (6055), 17 Montague Crescent, Oakwood, Leeds, 8.
G. V. SIMPSON (6056), Easington Hotel, Bloxham Rd., Banbury.
J. MUIR (6057), 3 Borland Rd., Bearsden, Dumbartonshire.
I. MCLEAN (6058), 1360 Paisley Road W., Glasgow, S.W.2.
R. MCFARLANE (6059), 24 Rockbank Street, Glasgow, S.E.
L. A. MADDEN (6060), 8 Trevose Avenue, Newquay, Cornwall.
P. W. CHAPMAN (6061), 25 Caledonia Place, Clifton, Bristol 8.
D. W. J. HAYLOCK (6062), 32 Tudor Close, Churn, Surrey.
C. PEARCE (6063), 87 Uxendon Hill, Wembley Park, Middlesex.
J. E. SWAYNE (6064), 53 Malcolm Rd., Woodside, London, S.E.25.
P. G. N. MURRAY (6065), 4 Hollington Court, Chislehurst, Kent.
J. D. BIRRELL (6066), c/o 229 Milton Rd., Joppa, Portobello.

K. STYLES (6067), 2 Bo-peep Cottages, Pembury, Nr. Tunbridge Wells.
 A. T. YULE (6068), 17 Rosehill Crescent, Aberdeen.
 T. A. SHAW (6069), 98 Horninglow Road, Burton-on-Trent.
 A. D. KENT (6070), Fairview, Pennyacre Road, Teignmouth.
 FUS. L. H. JONES (6071).
 R. WILLIAMS (6072), 4 Rye Hill, Rindlesford, Bridgnorth.
 MISS C. C. R. SINCLAIR (6073), 16 Greystone Gdns., Kenton, Mdx.
 C. F. O'REILLY (6074), 60 Desmond Avenue, Hull.
 W. PERCIVAL (6075), 3 Morton's Terrace, Liverpool, 19.
 W. E. WOOD (6076), 73 Eton Road, Ilford, Essex.
 E. P. SHARP (6077), 1 Rosebery Avenue, Boston.
 R. A. G. MUIR (6078), c/o Royal Bank of Scotland, 64 New Bond Street, W.1.
 N. A. P. CARTER (6079), Claverley, Burnham Ave., Beaconsfield, Bucks.
 A. BLAMIRE (6080), 23 Ardsley Rd., Worsboro' Dale, Barnsley.
 S. P. BOURNE (6081), 97 Cross Street, Stockingford, Nuneaton.
 W. J. GREY (6082), 79 Hertford Street, Cambridge.
 G. M. BARKER (6083), Field House, Winsford, Cheshire.
 F. HUGGINS (6084), 3 Reginald Street, Colne, Lancs.
 R. L. PORTMAN (6085), Fairfield Hse., Fairfield Rd., Halesowen, Nr. Birmingham.
 L. ARMSTRONG (6086), 21 Mason Tce., Hobson, Newcastle-on-Tyne.
 A. J. CLARKE (6087), 8 Wycliffe Road, Wyken, Coventry.
 F. R. DEAN (6088), Kinley, Boswell Rd., Sutton Coldfield.
 F. T. BUTLER (6089), Four Winds, Wilson Avenue, Rochester.
 R. J. GARNHAM (6090), 16 Couchmore Avenue, Esher, Surrey.
 G. T. COSELL (6091), 25 Hayes Way, Park Langley, Beckenham.
 S. G. DREIER (6092), 64 Collier Avenue, Beddington, Surrey.
 S. E. H. FREEMAN (6093), 59 St. George's Place, Cheltenham.
 C. F. GRAY (6094), 2 Wilson Ctgts., Venny Tedburn, Crediton, Devon.
 S. B. GAULD (6095), 30 Wolsley Street, Dundee.
 J. R. BEAUMONT (6096), 58 Drestead Rd., London, S.W.16.
 R. FINN (6097), Grisbrook, Robin Young Lane, Lydd, Kent.
 S. V. MOSLEY (6098), 21 Fraser Avenue, Penwortham, Preston.
 R. W. SHEPHERD (6099), 1 Hurrs Road, Skipton, Yorks.
 H. M. DORWARD (6100), c/o Brown, 7 Meadowbank Place, Edinburgh, 8.

A CORDIAL WELCOME IS EXTENDED TO THE

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NEW MEMBERS WHOSE NAMES ARE LISTED

A. W. GREEN (6101), 60 David Road, Coventry.
 J. JONES (6102), c/o 16 North Ellen Street, Dundee.
 W. H. H. FOULDS (6103), 36 Queens Ave., Seaham, Co. Durham.
 W. F. DOVE (6104), c/o Granville, Windsor Mount, Ramsay, I.O.M.
 A. J. BIRKINSHAW (6105), Ashfield House, Weston Lane, Otley, Yorks.
 D. G. GOODMAN (6106), 19 Ancroft Street, Glasgow, N.W.
 J. M. THOMSON (6107), 37 Landale Rd., Peterhead, Aberdeenshire.
 P. S. MEDGETT (6108), Upper Adisham, Nr. Canterbury.
 D. G. EVANS (6109), 3 Dan-y-Bryn Rd., Port Talbot, Glam.
 H. WARBURTON (6110), Fair Holme, Helmschore, Nr. Manchester.
 T. G. WARBURTON (6111), Fair Holme, Helmschore, Nr. Manchester.
 A. D. WRIGHT (6112), 134 Farnelton Rd., Rutherglen, Glasgow.
 B. F. TUCKER (6113), 6 Grove Gardens, Teddington, Middlesex.
 D. J. WALLER (6114), 87 Union Lane, Chesterton, Cambridge.
 E. BURLEY (6115), 8 Coronation Rd., Wath-on-Dearne, Yorks.
 R. C. WHITE (6116), 14 Warren Road, Torquay.
 W. R. WILSHIRE (6117), 113 Charlton Rd., Kingswood, Bristol.
 F. A. R. PRESCOTT (6118), 29 Hurst Street, London, S.E.24.
 J. D. WHITE (6119), 84 Green Lane, Edgware, Middlesex.
 W. MCCLUE (6120), 49 Ashgrove, Musselburgh, Scotland.
 W. E. IDDON (6121), 9 Natal Road, London, N.11.
 L. MARSH (6122), 30 New Road, Bournemouth.
 H. W. HOLTON (6123), 3 Battle Rd., Wash Common, Newbury.
 C. J. SYKES (6124), 122 Bush Hill, Northampton.
 E. J. KIMPTON (6125), 55 Old Shoreham Road, Brighton.
 P. BOOTH (6126), 87 Adwood Rd., Cheadle Hulme, Stockport.
 J. MITCHELL (6127), 19 Hampton Street, Plymouth.
 E. SHAW (6128), 62 Shirley Road, Birmingham, 30.
 I. I. POTTEROE-THOMAS (6129), Brynglo, Penygroes, Nr. Llanelli.
 T. E. HOBIN (6130), St. Michaels, Windermere Rd., Stowmarket.
 F. W. MEADE (6131), 69 Thornton Road, London, S.W.12.
 R. J. BRIEN (6132), 20 Hydes Place, London, N.1.
 J. G. KEELEY (6133), c/o The Corner Cafe, Elmstead Heath, Nr. Colchester.
 G. W. MORLEY (6134), 34 Longfield Ave., Hackbridge, Wallington, Surrey.
 C. H. CARMICHAEL (6135), 20 Fernie Field Rd., Booker, High Wycombe.
 R. L. BRATT (6136), 7 Chapel St., Savile Town, Dewsbury.
 L. HENRY (6137), Queens College, Cambridge.
 E. F. GRIDLER (6138), 71 Bulstrode Ave., Hounslow, Middlesex.
 J. M. YOUNG (6139), c/o 14 Reginald Road, Northwood, Middx.
 D. WALKER (6140), 1 Garden Place, Troon, Ayrshire.
 R. C. G. HOLLIS (6141), 46 Monkham Avenue, Woodford Green, Essex.

F. L. HANLY (6142), 34 Linzee Road, London, N.8.
 H. B. GRUNER (6143), 6 Bearton Green, Hitchin, Herts.
 W. R. BRACE (6144), 358 Chepstow Rd., Newport, Mon.
 S. T. BANKS (6145), 627 Ormskirk Rd., Pemberton, Wigan.
 R. G. GALLOWAY (6146), 276 Knutsford Road, Warrington.
 J. M. GILLESPIE (6147), 12 Loch Rd., Chapelhall, via Airdrie, Lanarks.
 D. G. JONES (6148), 8 Windsor St., Treorchy, Rhondda, Glam.
 C. M. BELCHAMBERS (6149), 32 High St., Gt. Shelford, Cambridge.
 C. HEYS (6150), 70 Periwinkle Lane, Hitchin, Herts.
 H. T. CARRY (6151), 25 Bodene House, Peckham Road, London, S.E.5.
 W. S. HENRY (6152), Chronicle Bldgs., Newtownards, Co. Down.
 W. STEVENS (6153), 1 Third Avenue, Hayes, Middlesex.
 D. R. SAWYER (6154), Highview, Watty Hall Road, Wibsey, Bradford.
 M. J. MCGHVERN (6155), 2 Brittons Pde., Whitehead Rd., Belfast.
 R. R. B. WAIN (6156), 72 North Street, Southend-on-Sea.
 R. STEVENS (6157), 38 Clover Street, Derby.
 J. H. DAVEY (6158), 26 Ramsay Rd., Clydach, Swansea.
 G. E. NETTLE (6159), 13 Parkway, Thingwall Road, Barnston, Wirral.
 W. J. TAYLOR (6160), Railway Hotel, Witely Stn., Wormley, Sy.
 D. K. PEARSON (6161), 72 Valence Rd., Braunstone, Leicester.
 C. T. CAPPER (6162), 1585 Coventry Rd., Birmingham, 26.
 N. L. MUGFORD (6163), 15 Elmdene, Tolworth, Surbiton, Sy.
 E. G. ROWLAND (6164), 39 Duggers Lane, Braintree, Essex.
 J. H. CROSLAND (6165), Airedale, Sidford, Sidmouth, Devon.
 F. J. BOWMAN (6166), Woodville, Whitehouse Park, Belfast.
 L. R. VAN DEN BROEK (6167), 95 Tynedale Road, Strood Green, Betchworth, Surrey.
 F. N. SLOSS (6168), 54 Central Ave., Bangor, Co. Down.
 R. A. SIMONS (6169), 20 Blendon Tce., Plumstead, London, S.E.18.
 R. A. BASTOW (6170), 51 Chaworth Rd., W. Bridgford, Notts.
 E. A. L. MACCOLM (6171), 134 Kingsheath Avenue, Bankhead, Rutherglen.
 K. THOMAS (6172), 12 Heskey St., off Huntingdon St., Notts.
 G. A. L. BUTLER (6173), 62 Depot Rd., Horsham, Sussex.
 J. N. CARTER (6174), 25 Gleebe Avenue, Hunstanton, Norfolk.
 D. K. PESCU (6175), 51 Court Farm Road, London, S.E.9.
 B. V. WILLIAMS (6176), 22 Excelsior Terrace, Marby, Glam.
 E. S. CURTIS (6177), 5 East View, Broxbourne, Herts.
 F. O. DYER (6178), Lynton, Heathfield Rd., Sholing, So'ton.
 G. ISAACS (6179), 63 Pavilion Gardens, Staines, Middlesex.
 J. H. MANDELSON (6180), 9 Bryn Coch, Pantymwyn, Nr. Mold, Flint.
 R. P. HOPE (6181), Pentlands, Barton Cross, Torquay.
 MISS E. BAGSHAW (6182), St. Decave, Christchurch Road, Great Malvern.
 T. O. ELLISON (6183), 419 Salters Rd., Gosforth, Newcastle-on-Tyne, 3.
 K. C. POWELL (6184), 67 Grove Road, London, E.11.
 S. BOLTON (6185), 38 Ridling Lane, Hyde, Cheshire.
 C. A. READ (6186), 6 Hazlemere Gardens, Worcester Park, Sy.
 L. J. MURPHY (6187), c/o 17 York Road, Colwyn Bay.
 W. ROBSON (6188), 43 Newton Street, Bensham, Gateshead.
 * E. A. LOMAX (1579), 116 Morecambe Road, Lancaster.
 * L. C. KRAILING (3058), Lloyds Bank Hse., Clare, Sudbury, Sffk.

Dominion & Foreign

H. A. BERGGQUIST (W9NOP), Smolan, Kansas, U.S.A. (U.S. Army).
 R. O. FULLMAN (W3HUG), 41 W. Queen St., Hampton, Va. (U.S. Army).
 J. C. PALMER (BERS516), 119 Perth St., Guelph, Ont., Canada (R.C.A.F.).
 H. SEGULEM (FRS67), 38 Gallows Hill Lane, Abbots Langley, Herts.

Associates

D. MORGAN (Junior), 12 First Avenue, Treceynydd, Caerphilly.
 A. W. WELSH (Junior), 41 Carnegie Place, Muirton, Perth.

* Denotes Re-Elected to Membership.

RE-OPENED

THE EXCELSIOR HOTEL

1 & 2, LADBROKE GARDENS,
 NOTTING HILL GATE, W.11.

Telephone : Park 6323.

As in the Past, G5LN (Proprietor) will be glad to welcome Ham friends old and new.

BRITISH ISLES NOTES AND NEWS

DISTRICT 1 (North Western)

Ashton-under-Lyne.—At a meeting of the local radio society held at the home of Mr. W. Taylor, on March 21, it was decided that future meetings should be held monthly at venues to be decided upon from time to time. The next is fixed for April 18 at 2.30 at Chisnall's Radio Shop, Warrington Street, Ashton (opposite G.P.O.). As the Secretary (2FOS) is temporarily in the St. Helen's district, all inquiries should be addressed to the Assistant Secretary, Mr. Brierley, 26 Ladbroke Road, Ashton-under-Lyne. The tenancy of the room at the Beaconsfield Club has now been discontinued, but it is hoped that the 10 members remaining in the town will make a special effort to attend the monthly meetings. Service members passing through are cordially invited. 2HAP is designing a high-fidelity audio amplifier. 3BY (R. Signals) swears by the HRO and intends to instal one after the war. 3PM is attending an A.T.C. Officer's course at No. 1 R.S. for seven days commencing April 17 and hopes to make a few contacts.

Bolton.—Local members appear to have gone into a belated winter hibernation as only three of them attended the last meeting. 3789 from District 7 lost no time in contacting the T.R. when he arrived in our midst. The next meeting will be held at 32 Bromwich Street, Bolton, on Sunday May 2 at 2.30. Service members will be welcomed.

DISTRICT 2 (North Eastern)

D.R.: C. A. Sharp (G6KU), 316, Poplar Grove, Gt. Horton, Bradford, W.Y. 10772. Scribe: H. Beadle (G8UO), 13, Chandos St., Keighley.

The D.R. has pleasure in announcing that a P.D.M. will be held on Sunday, May 23 at the Hotel Metropole, Leeds. Full details of the arrangements are given in the special announcement published below. As the President and General Secretary have promised to attend, it is hoped that every member living within easy reach of Leeds will attend to extend to them a true Yorkshire welcome.

G4JJ (R.A.F.), now holds the rank of Warrant Officer. 5YV has built a 9 valve communications receiver which puts his

DISTRICT 6 (South Western)

D.R.: W. B. Sydenham, B.Sc. (G5SY), "Sherrington," Cleveland Road, Torquay. Torquay 2097.

Torquay.—There is little to report from this area except that 2CAA, having seen and heard the D.R.'s latest in action, is contemplating the building of a super-het. G2GK is active in several directions.

Plymouth.—2CJB is happy in his new job in the experimental department of British Overseas Airways. 3547 reports well from FA. Congrats to 3464 (R.A.F.) on his marriage. 2DLJ has now recovered from his serious illness. Recent gales have at last removed from the landscape the 50 ft. "oil derrick" of 3TX, who reports that he is now commissioned in the R.A.F.V.R. (Training Branch), for service with the A.T.C. (Good luck O.M.) 6RF has now gone overseas.

We could do with more notes from the other areas next month please.

DISTRICT 7 (Southern)

D.R.: W. E. Russell (G5WP), Milestones, Westfield Road, Mayford, Woking, Surrey.

Croydon.—There was an attendance of 12 members at the March meeting which was held for the first time at the Croydon Y.M.C.A. Those present included 2DP, 2VB, 3DF, 3ST, 4NI, 5BT, 2HHD, 1545, 3003, 4324, 6064. The main feature of the meeting was a lecture given by 5BT on "The design and construction of a sensitive and selective war-time Communications Receiver." Various questions were put to 5BT, who gave his answers in masterly fashion. It is hoped to provide a lecture of interest each month.

Congrats are offered to G2RD, who announced his engagement whilst home on leave; 5795 would like to meet members located near Amesbury, Wilts. His address can be obtained from 2DP. See Forthcoming Events for date and time of next meeting.

Coulsdon.—2ANR in another air-mail letter from Malta reports that he is swotting up radio theory in his spare time. ZBIE, whom he has met again is engaged on work in connection with

TECHNICAL ARTICLES WANTED

The General Editor will be pleased to receive offers from Members for Technical Articles

"Champion" in the shade. It has regeneration on both the R.F. and I.F. stages and a single signal effect equal to most sets with crystal filter. 4FU would be pleased to contact Service members stationed in Bradford. 8ID, now in Surrey, sends 73 to 8BT, 5VC, 6AZ, 6BR and 6XL. 3YA is with the R.A.F. in Norfolk where contact has been made with a number of VE5's and a ZL. 6LZ is in the M.B.E. 5842 (R.A.F.), is studying time bases and building a communications receiver. 5IV has had severe dental trouble which put him in hospital for a while, but he is now fit again. 2317, 4 Stratford Street, Leeds, 11, will be pleased to welcome members at that address. 6KU is busy with A.T.C. 6BX also reports busy. Letter budget No. 4 is now on its rounds. G2LT would be pleased to have letters for incorporation in the Sheffield area letter budget proposed last month.

DISTRICT 3 (West Midlands)

D.R.: V. M. Desmond (G5VM), The Chestnuts, Gilbert's End, Wores. Scribe: E. J. Wilson (2FDR), 48 Westbourne Road, Olton, Birmingham, 27.

Birmingham.—At a meeting of M.A.R.S. held on March 14, Mr. Rex Heatley gave a very interesting talk on the Eddystone 358 receiver. Future meetings of M.A.R.S. will be run in conjunction with the R.S.G.B. membership in Birmingham, an arrangement which it is hoped will produce good attendances. Service members will be cordially welcomed at the first joint meeting to be held at 7 p.m. on May 11 at the "Hope and Anchor" Hotel, Edmund Street.

DISTRICT 4 (East Midlands)

Deputy D.R. W. M. Vendy (G6VD), 9 Cecilia Road, Clarendon Park, Leicester.

Leicester.—A good attendance was recorded at the March meeting held at G6VD, when a new member, 5142, was welcomed. It is hoped that others will follow his example. 5017 is now posted elsewhere.

Nottingham.—Test gear proved to be the main topic for discussion at the March meeting. 4885 is now in the Services and 5012 expects to leave soon. News is to hand from 4172 (North Africa), who reports fit and well. It is regretted that an error occurred in our notes last month, the call G8CZ should have read G8DZ.

Derby.—G2OU who sends in another "zero activity" report has recently been visited by 2CVV and G8BN; he notes with pleasure that G8AZ and G2TL have joined the Society.

G6VD.

Civil Defence. A welcome is extended to a new member, J. G. Dodd, 5968, of Purley.

Maidenhead.—Congrats to 5799 on his promotion to Corporal. No replies were received to the appeal made last month for support in starting local meetings apart from an appreciated letter from the High Wycombe T.R. inviting local members to attend a meeting. The address was in last month's BULL, so what about it chaps?

Southampton.—G5LR, formerly of District 1 (Manchester), reports his presence this month in a welcome letter. He has met a goodly number of members including G2NS, 2XP, 5LT, 6II, 8KX and 8QX.

Kingston.—The many friends of Frank Wadman, 2GK, will be glad to hear he is very fit and apparently enjoying the exciting times experienced by coastal dwellers these days.

NORTH EASTERN PROVINCIAL DISTRICT MEETING

to be held at

HOTEL METROPOLE, LEEDS
on Sunday, May 23rd, 1943

ASSEMBLE	-	-	-	2.0 p.m.
BUSINESS MEETING	-	-	-	3.0 p.m.
TEA AND BISCUITS	-	-	-	4.30 p.m.
INFORMAL DISCUSSIONS	-	-	-	5.0 p.m.

Inclusive charge 2/- a head

Mr. A. D. Gay, G6NF (President) and Mr. John Claricoats, G6CL (General Secretary), will be present. Reservations by postcard to Mr. C. A. Sharp (G6KU), 316, Poplar Grove, Gt. Horton, Bradford, not later than May 20th.

DISTRICT 8 (Home Counties)

Deputy D.R.: L. W. Jones (G5JO), 16 Leys Road, Cambridge.
Tel.: Cambridge 3406.

Our first real war-time District meeting (held in Cambridge on March 20) was supported by 29 members and friends. Interesting informal discussions took place on all aspects of amateur radio. After tea G2PU delivered a much appreciated talk on the pre-war development of generators for the production of very short wave electrical oscillations. The meeting provided members with opportunities for making suggestions and airing complaints.

In view of the unqualified success of this meeting, it was unanimously decided to make plans for another at an early date. It is hoped to publish details next month.

The sum of £2 10s. was collected for the R.S.G.B. Prisoners of War Fund.

Luton.—A meeting was also held in Luton on March 20 when the 14 members present took part in a discussion on A.F. amplifiers. An interesting circuit for phase inversion for R.C. push-pull amplifiers was also described.

The next meeting of the section will be held on April 24 at 3 p.m. at the Bizzie Bee Café, Bury Park Road, when Cpl. C. Heys

Forthcoming Events

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|----------|--|
| April 18 | District 4 (Nottingham Section), 6.30 p.m. at 3 Laburnum Grove, Meadow Road, Beeston (near station). Sale of disused apparatus. |
| April 18 | District 5, 3 p.m. at 17 Colston Avenue, Centre, Bristol |
| April 18 | District 12, 3 p.m. at 2DHF, 22 Bramford Court, High Street, Southgate, N.14. |
| April 18 | District 15 (High Wycombe Section), 2.30 p.m. at G2RL, "Denewood," Totteridge Road, Totteridge. (Bus 363 from Frogmore to First Avenue). (A p.c. if attending please). |
| April 25 | Scotland "A" District, 3 p.m. in Room 24, Royal Technical College, George Street, Glasgow. (Enter by Montrose Street). |
| April 25 | Scotland "C" District, 2.30 p.m. in Dundee Wireless College, 7 Airlie Place, Dundee. Lecturette by GM4HR on "Workshop Practice." |
| May 1 | London Meeting, 2.30 p.m. at the I.E.E. Discussion "Planning the Post-War Amateur Station." Opened by Mr. P. W. Winsford, G4DC. |
| May 2 | District 4 (Leicester Section), 6 p.m. at G2IX, 19 Francis Avenue, Narborough Road South. |
| May 2 | District 7 (Croydon Area) and District 13 (South Central and Eastern Areas), 3 p.m. at Croydon Y.M.C.A., North End, West Croydon. |
| May 2 | District 10, 3 p.m. at GW8UH, 29 Ladysmith Road, Roath Park, Cardiff. |
| May 23 | District 2 P.D.M. at Hotel Metropole, Leeds. |
| May 29 | London Meeting, 2.30 p.m. at I.E.E. |
| May 30 | District 10, 3 p.m. at GW8UH, 29 Ladysmith Road, Roath Park, Cardiff. |

will lecture on "Inverse Feedback Circuits." A discussion will follow the lecture.

The D.R. hopes that it will soon be possible to arrange for a joint meeting between the Cambridge and Luton sections. Such a meeting would undoubtedly prove very popular. G5JO.

DISTRICT 9 (East Anglia)

D.R.: H. W. Sadler (G2XS), The Warren Farm, South Wootton, Kings Lynn, Norfolk. Castle Rising 233.

Norwich.—We are glad to learn that Sig. E. G. Small, 5318, is now back with his unit after a long spell in hospital. SKI of District 7 temporarily resident in District 8, reports that 2UJ, 6PB and 2FUC are also in the vicinity. Despite reports that 2MN had left the town he has turned up smiling with a letter from his old QRA. He wonders whether amateurs after the war will ever catch up with receiver design, especially for U.H.F. experiments, or whether they will all buy commercial sets and concentrate on transmission problems. He feels very despondent whenever he looks at his own half built chassis! Ldg. R./Mech. J. Blyth, 5957, whose home address is Rectory Road, Dereham, would like to hear from old friends. As he is now an instructor in the west country, we shall look to him for technical help after the war.

Lowestoft.—G5QO, who seems to be enjoying life to the full, is often around the District but has little spare time for visits. (The D.R. would be pleased to meet him at his business address which is not difficult to reach). 5QO wishes to be remembered to SWI and all old friends.

Kings Lynn.—G2XS has received welcome visits from Frank Bennister, 4324 and Jock Wallace, 1545, both from District 15. He hopes they will call again soon. L. Bradshaw, having passed a radio course in the Midlands, is now busy with Morse. Congrats. to Lt. (B) E. W. Burgess, G6FB, who was married on March 6 at Plymouth. G2XS.

DISTRICT 10 (South Wales & Monmouthshire)

Deputy D.R.: H. H. Phillips (GW4KQ), 82 Cottrell Road, Roath Park, Cardiff. Cardiff 2697 during business hours.

Welcome news of GW3AJ has been received via 6BK. Harry, who is now in the M.E. reports fit and well and says he is looking forward to hamfests and conventions. 2NG is now reported to be enjoying more quiet times in East Africa after his long spell in Malta. No recent news has been received from 5BI who is in India.

Cardiff.—Those present at the February meeting held at GW8UH included G6HB, GW2UH, 4KQ, 5WU, 8AM, 8UH and 5753. Thanks are due to Mrs. 8UH who provided refreshments. The next meeting is to be held at 3 p.m., May 2 at the home of GW8UH, 29 Ladysmith Road—off Penylan Hill—Roath Park, Cardiff. Service members stationed locally will be cordially welcomed.

Blackwood.—6BK reports little activity in this area, but looks forward to a resumption in the near future.

Newport.—A welcome is extended to 5958 who has joined since these notes last appeared. It is hoped to arrange a local meeting should sufficient support be forthcoming.

South Pembrokeshire.—Owing to the exigencies of war the arrangements to hold a meeting in the Haverfordwest area were unavoidably cancelled. Capt. G. C. Price (GW2OP) would, however, be glad to hear from Service members stationed near Pembroke, with a view to arranging a get together. His 'phone number is Pembroke Dock 39.

Although several members have sent in reports, there appears to be little actual radio activity at the moment. GW4KQ.

DISTRICT 11 (North Wales)

Deputy D.R.: C. Spillane (BRS1060), "Woodside," Meliden Road, Prestatyn.

The March meeting held at 4762 resulted in an improved attendance, GM6IW, 2DAH, 2DGO, 2731, 3044, 4444, 4762, 5050 and Sgt. Fletcher—a prospective member—being present. 4762 demonstrated successfully an amateur built radiogram with piezo-electric pick up. The next meeting will be held at "Vale View," Prestatyn, on April 25 at 3 p.m.

Sgm. Geddes, 4023, in an airgraph from M.E. reports being in hospital with shrapnel in the leg. He sends 73 to all old friends in North Wales (Thanks O.M. and quick recovery). ZL2RI has been posted overseas. GW4CK built a new superhet while on leave. Gnr. Shersby, G2GZ, is now stationed in the district. BRS1060 is now in District 18 where he hopes to make local contacts, time permitting. We welcome 2BFA and 5994 to membership. BRS1060.

DISTRICT 12 (London North and Herts)

D.R.: S. Buckingham (G5QF), 41 Brunswick Park Road, New Southgate, N.11. Enterprise 3112.

The March meeting held at G6CL was enlivened by the presence of Capt. Joseph Andrew, W4EFG (Chaplain U.S.A.A.F.) and Capt. George Collier, W9CWI (A.A.F.), both of whom related many interesting ham stories. The free issue of "Chelsea's" was greatly appreciated.

The next meeting will be held at 22 Bramford Court, High Street, Southgate, home of Mr. C. Stevens, 2DHF. Book to Southgate Station, Piccadilly (two minutes walk along High Street). Buses 29 or 244 pass the door, alight at Minchenden School.

It is hoped to arrange a meeting at St. Albans in the summer. G5QF.

DISTRICT 13 (London South)

A.R.'s: (South Eastern and Central), S. E. Langley (G3ST), 62 Dumbarton Road, S.W.2. (Western), E. H. Simmonds (G8QH), 17 Roedean Crescent, Roehampton, S.W.15. Prospect 1990.

South-Eastern and Central Areas.—Those who attended the March meeting held at the home of 2HHD, had a most enjoyable time. Our host is thanked for providing comfortable accommodation and refreshments. G2GZ, who was present on short leave, is now in District 11 on a special signals course. A collection for the P.O.W. Fund realised 11s.

By a great majority it was agreed as a war-time measure to follow District 7 (Croydon Section), and hold future meetings at the Y.M.C.A. Croydon. This will mean joining the Y.M.C.A. as an Associate member at a yearly fee of 5s. There is a great deal to be said in favour of this new meeting place, as it is near West Croydon Station and the main bus and tram services.

It has also been agreed to hold bi-monthly meetings with District 7, so in future both District 13 and District 7 will meet

at the above venue on the first Sunday in each month at 3 p.m. All Service members and visitors in uniform will be admitted free of charge. New members will be warmly welcomed.

73 and good luck to all absent friends of District 13. G3ST.

South-Western Area.—As the wandering Log is unpunctual again, material for notes is scarce. 4111 reported in person. The Area sends good wishes to 6LR and hopes he is now "in the clear" after recent illness. 8QH, having lost a forty-footer in the recent high wind has been enjoying log fires! Will the present holder of the other Log please hurry it along! G8QH.

DISTRICT 14 (Eastern)

D.R.: R. L. Varney (G5RV), 184 Galleywood Road, Chelmsford, Essex. Chelmsford 3394.

Chingford.—G2HR, 8DG, 2DZI, FSR, AGZ, 4210, 4215 and 5726 were present at the March meeting held at G8DG when tests on record wear were carried out. As, however, they proved surprisingly inconclusive, they are to be continued. 5684 was absent owing to illness.

During last month 8DG was pleased to receive a visit from 2FSR. 4215 will be glad to hear from 2HIW.

A further meeting will be held at 8 Bosgrove, The Ridgway, N. Chingford, on Sunday, April 18 at 3 p.m. via G8DG.

Chelmsford.—Another well attended meeting was held at G6LB at the usual time and date (7 p.m. on the first Sunday in the month). A letter has recently been received from Capt. Hill, G2KG, who appears to be still doing a splendid job somewhere in the M.E. He tells of a weird and wonderful receiver made out of various bits and pieces salvaged largely from wrecked Jerry and Iti planes! It contains valves with 2, 4 and 6 volt filaments and a chassis made of a piece of MBI09! Good work, Gordon. Is not there a saying that "you can't keep a good Ham down"? 5RV has temporarily given up receiver testing and taken to house decorating! 6LB is busy on a complete re-build after learning a lot of useful kinks by hard experience in building his first super! 5HF has turned his varied talent to the design of "low loss" jazz band equipment! His latest "washboard special" was loudly acclaimed at a local party attended by 6LB and 5RV. 2AZ was in Chelmsford recently, but was not in time for the meeting. G5RV.

DISTRICT 15 (London West, Middlesex and Buckinghamshire)

D.R.: H. V. Wilkins (G6WN), 539 Oldfield Lane, Sudbury Hill, Greenford, Middlesex. Byron 3369.

West London.—Ft./Lt. H. W. Pope, G3HT, home on leave and looking very fit, was a welcome visitor at the March meeting. Others present included G3SU, 6PR (whose two sons are now serving the old country), 6WN, 2ADL, 5056 and 5246. The latter now sports a "pip" in the Home Guard. During the meeting 3HT gave an interesting discourse on his first attempts at transmission way back in 1912.

G5JL, writing from North Africa, where he is serving as St./Sgt. in the R.E.M.E., sends 73 to all old friends. He has met G2BY (a Cpl. in R. Sigs.), and W9JVC. Congrats to 8WR on his marriage.

As the result of a suggestion made by G5LN we hope to announce a meeting next month at the Excelsior Hotel.

High Wycombe.—G6IF during a visit to his old District (No. 14) met G2SO, 2GU, 2KH and 5YQ. BR56026 (late 2CLW of Westcliffe on Sea), who now lives at 49 First Avenue, Amersham, would like to meet local members. Reports are to hand from 4782, 5666, 4781 and 5156. The latter has joined the Navy. (Good luck O.M.) All ex-District 14 members estranged in H.W. send their congratulations, although rather belated, to 2CVA upon his marriage. G6WN.

★ LONDON MEETING ★

Mr. P. W. WINSFORD (G4DC)
will open a discussion on

Planning the Post War Amateur Station

at the Meeting to be held on
SATURDAY, MAY 1st, 1943

at

The Institution of Electrical Engineers
SAVOY PLACE, VICTORIA EMBANKMENT
LONDON, W.C.2

COMMENCE AT 2.30 P.M.

DISTRICT 16 (South Eastern)

Deputy D.R.: W. A. Scarr, M.A. (G2WS), 8 Beckenham Grove, Shortlands, Bromley, Kent. Beckenham 1131.

Members in the Brighton area will be sorry to hear that Mr. Clacy, 6CY, has left their midst to join the R. Signals. The Deputy D.R. takes this opportunity of thanking him for all he has done to maintain contact between local members, and for his work in furnishing regular reports throughout the time he has been acting as T.R. We wish him good luck in his new sphere of activity.

A letter is to hand from George Haylock, 2DHV, of Sidcup, who is with the P.A.I. Force. He enjoyed his stay in India where he met 5JF of Burton-on-Trent. He keeps in touch with 2HKU, but would also like to hear from 51L and 3FC. 2DHV's letter which was written in December, contained a message of seasonal greetings to all members in the District. Eddy Trowell, 2HKU, writes from Sheerness to report continued activity in spite of illness. He maintains contact with 4721 and has heard from 3GW and 2DHV. G2WS.

DISTRICT 18 (East Yorkshire)

District Scribe: S. Davison (G6SO), 10 Sidney Street, Scarborough.

Bridlington.—A welcome is extended to Sq./Ldr. A. J. S. Wilson, G2UW, who is now stationed in the town. Will all old and new members in the Bridlington area please forward their address to G6SO?

Hull.—The only report this month comes from A. G. Dunn, G3PL, who would welcome letters from any local member whether new or old; in particular he would like to hear from 3308 and 4209. Here is an opportunity for new members to contact some of the "Old Gang." 3PL's address is 79 Hayton Grove. D. Withers, 5924, is welcomed as a new member.

Scarborough.—After two and a half years in the north of Scotland (where he met many amateurs from G, W, VE, etc. and recruited one or two new members), Leslie Tranmer, G6TG, is now in the south of England. He sends 73 to all and reports meeting G3WC although he has not had sufficient time to look up the locals. G6SO.

DISTRICT 19 (Northern)

D.R.: R. J. Bradley, G2FO, 36 Raby Road, Stockton-on-Tees.

Newcastle.—Mr. Haley, BR55236, who has taken over as T.R. for Newcastle, hopes to arrange regular meetings, and requests all interested members to get in touch with him at 43 Hyde Terrace, Gosforth.

The D.R. has received a long letter from 4679 bemoaning the lack of news from the District. He has been busy recently building a C.R. oscilloscope and multivibrator. He also reports meeting 2FSI, 5801 and 5584. G2FO.

Northern Ireland

D.R.: J. N. Smith (GI5QX), 19 Hawthornden Drive, Belmont, Belfast. Belfast 63323.

G8PR, in an airgraph from the M.E. sends 73 to all at GI6YM and wishes he was still attending the "rag-chews." Ex-GI6VG expects to be afloat again shortly. 2DDI, who has now attained the rank of Sergeant Pilot, hopes to return from Canada shortly. GI6TK, having recovered from his illness, renewed his acquaintance with EI5F and EI6J, during a visit to Dublin. 2BYC (a regular visitor at GI6YM) has returned after a long absence—he was pre-war treasurer to the Bradford S.W.C. W9KQQ and W8KCG still "haunt" the club room as does W3HUG, a newcomer from Virginia. W8VWH who answers to the very Irish name of O'Rourke, has visited 5HU. New member 6006 has moved to G. 4854 has been posted overseas with the rank of Corporal. GI5HU is still trying to get the Y.M.C.A. Club "on top of the world"! A new scheme was tried out recently to raise funds for the P.O.W. Fund. Each week a radio component is balloted for and the proceeds go to the Fund. The first effort produced 10s. and the second 3s. GI5QX.

Scotland

Scottish Records Officer: J. Hunter (GM6ZV), 51 Camphill Avenue, Glasgow, S.1. Langside 237

"A" District.—At the February meeting Sgt. Valchera delivered a most interesting lecture on Television which was illustrated with demonstrations. The lecturer at the March meeting was GM4JO, who spoke on U.H.F. practice. Members are asked to note that the mid-monthly meetings on Tuesday evenings have been suspended due to transport difficulties. BR52098 was a visitor to the March meeting.

"B" District.—GM3RL, who turns up again with a long and newsy letter, reports that 5YN was on leave recently. He is still at a Naval Shore Station, his attempts to go afloat having, so far, been turned down. 3RL has met 2OX, who sends 73 to all "B" District members. He has joined the ranks of the Benedicts. This seems to be a habit of "B" members, other recent additions to the ranks being GM3QH and 3011. 4MG, who is now serving on a coaster expects to be married in the near future. 3011 is a Sgt. in R. Sigs. 6LG sends 73 to all serving "B" members. 5TA, who had trying experiences during the evacuation from Crete,

has received his discharge from the M.N. and has started a wireless business in Aberdeen (Good luck O.M.). If G4FZ reads these notes and is still in "B" please contact 3RL, phone Aberdeen 6095. 8SV, who is coasting around Iraq, sends regards to all.

"C" District.—Fifteen members heard the D.O. give his recent lecture on batteries. Membership continues to grow and activity is well maintained. GM4NH, home on leave, was welcomed at the meeting.

"H" District.—GM8MQ reports that amateur activities are at a low ebb, his only contact having been with a ZL BERS. 2FQO is very energetic, studying, servicing receivers, performing Civil Defence duties and assisting the Home Guard with signalling. He is also D.R. for the World Friendship Society of Radio Amateurs. A meeting of "H" members was to be held on Sunday, April 25, at 2.30 at Makora, Kinghorn, Fife, but unforeseen circumstances have caused its cancellation. In the event of it taking place, as many members as possible will be notified direct and the D.O. will hope for a good turn-out. We welcome another new member, 5895. GM2NQ advises members that their correspondence to him should now be addressed to the Royal Hotel.

Far North.—Congrats are extended to GM6RI on attaining his second "pip." 8RI, with an eye to the future has drawn up full plans for his post-war rig, so look out chaps! 3PJ is silent as to his plans, but 3PQ shows signs of activity in something! We trust that G3JR has now fully recovered from his illness. 2NQ and others report meeting G6NM. GM6ZV.

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MEMBERS' private advertisements 2d. per word, minimum 3s. TRADE advertisements 4d. per word, minimum 6s. TERMS: Cash with order. All copy and payments to be sent direct to Advertisement Managers, PARRS Advertising Ltd., 121 Kingsway, London, W.C.2, by the 30th of the month for following month's issue.

ALL KINDS OF PRINT.—Send your enquiries to G6MN, Bridge Street, Workson.

NATIONAL Gear Drive, dial type, PW-O. National double stator condenser 40-75 μ F. £4 10s. Raymart Oscilloscope wanted.—LOVEWELL, Police Station, Swaffham, Norfolk.

NATIONAL H.B.O. Communication Receiver required, 230 volts A.C. State lowest cash price.—Box 284a, 75-9 Farringdon Street, London, E.C.4.

NATIONAL HRO Senior Receiver required, any voltage, A.C. Good price for first-class receiver.—J. STEWART MARK (GM3DD), 114 South Street, St. Andrews, Fife.

RADIO NEWS (1940-41), QST July-December, 1942), and any 1939-1943 American periodicals containing recording articles, wanted urgently; buy, loan.—ALDOUS, "Strathdee," Studley Road, Torquay.

REQUIRED.—Trophy 6, Premier 5 or similar type receiver. Would consider set requiring repairs, etc.—MALE, 3 Chestnut Walk, Salford, Bristol.

R.M.E. 69 A.C. noise limiter model, xtal gate, excellent condition. Best offer over £45.—G5CP, 33 Manley Road, Sale, Manchester.

SALE.—Hammarlund Comet Pro, range 9-250 metres, with charts, xtal gate. What offers?—2FFX, 7 Willow Crescent, Preston, Lancs.

SALE.—Howard Communications Receiver, Model 438, crystal filter, in new condition. Offers. Would exchange for good signal generator. Hunts 4002 or similar for A.C. mains.—G. R. SLAUGHTER, G3WB, 34 Fairway Avenue, Gainsborough, Lincs.

SALE.—Laboratory built 1,000 ohm per volt D.C. multi-meter; also new Tungram valves, V2118, HL13, PP35, Europa U/VHP. Offers. Stamp for details.—HOWELL, 80 Westmeads Road, Whitstable, Kent.

SALE.—Mullard 3 in. Cathode Ray Tube, unused, £3; also HVR2 unused, 15s.—WHITBY, 267 Crogan Hill, Barry, Glam.

SALE.—Prototype S.W. Magazine Battery Pen V Pen, as new; Eddystone cabinet, 9/90 metres, complete. Offers.—HALL, 140 Sinclair Road, London, W.14.

SKYRIDER SX23 Communication Receiver, practically as new, xtal gate, speaker, £40.—G8RY, 164 Newhampton Road West, Wolverhampton.

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VALVES wanted.—Three 6SJ7, two 6N7, one 12A7, one 6A3.—J. STEWART MARK (GM3DD), 114 South Street, St. Andrews, Fife.

WANTED, in good condition, copy T. & R. Bulletin for June, 1938.—(2BIB) CLARK, 2 Gloucester Road, Whitstable, Kent.

WANTED.—Hallcrafters Pre-selector, battery model, 230/250 v. two or three stage.—Details and price to Box FAH, PARRS, 121 Kingsway, London, W.C.2.

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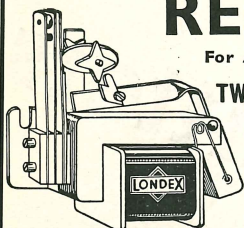
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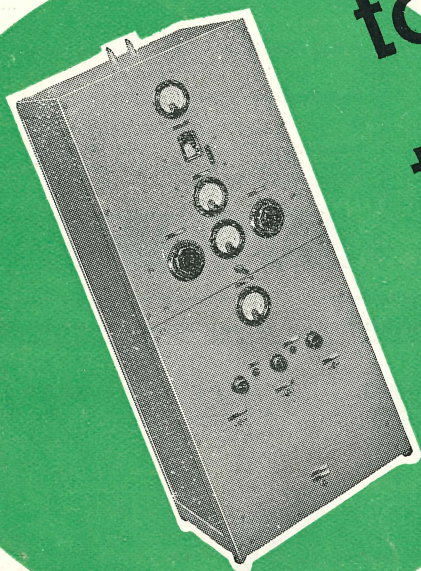
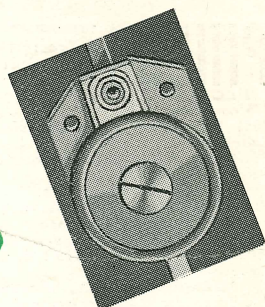
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